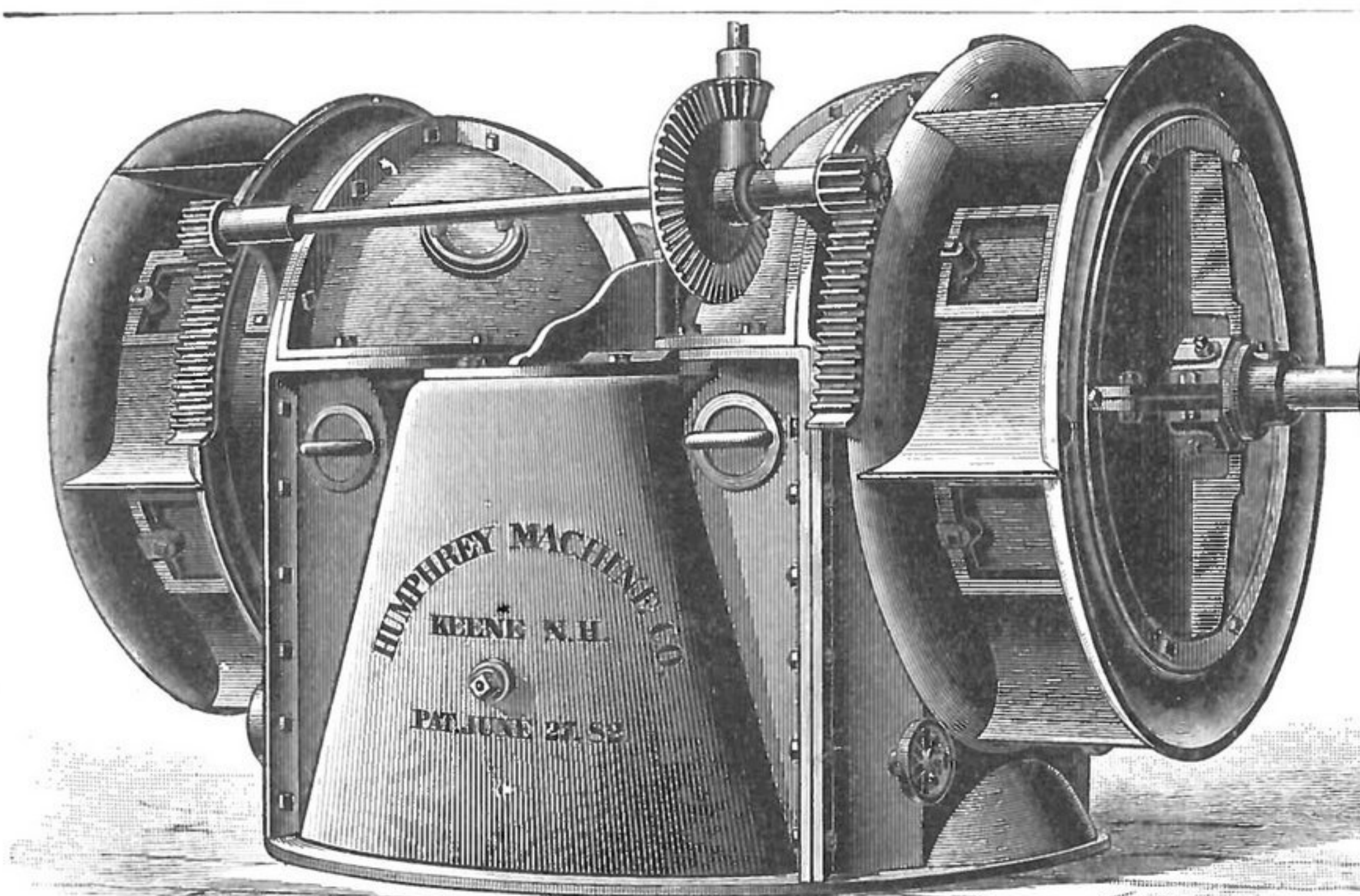


PUBLISHED EVERY MONDAY MORNING.

VOL. XXII. No. 21.

BUFFALO, N. Y., JULY 21, 1890.

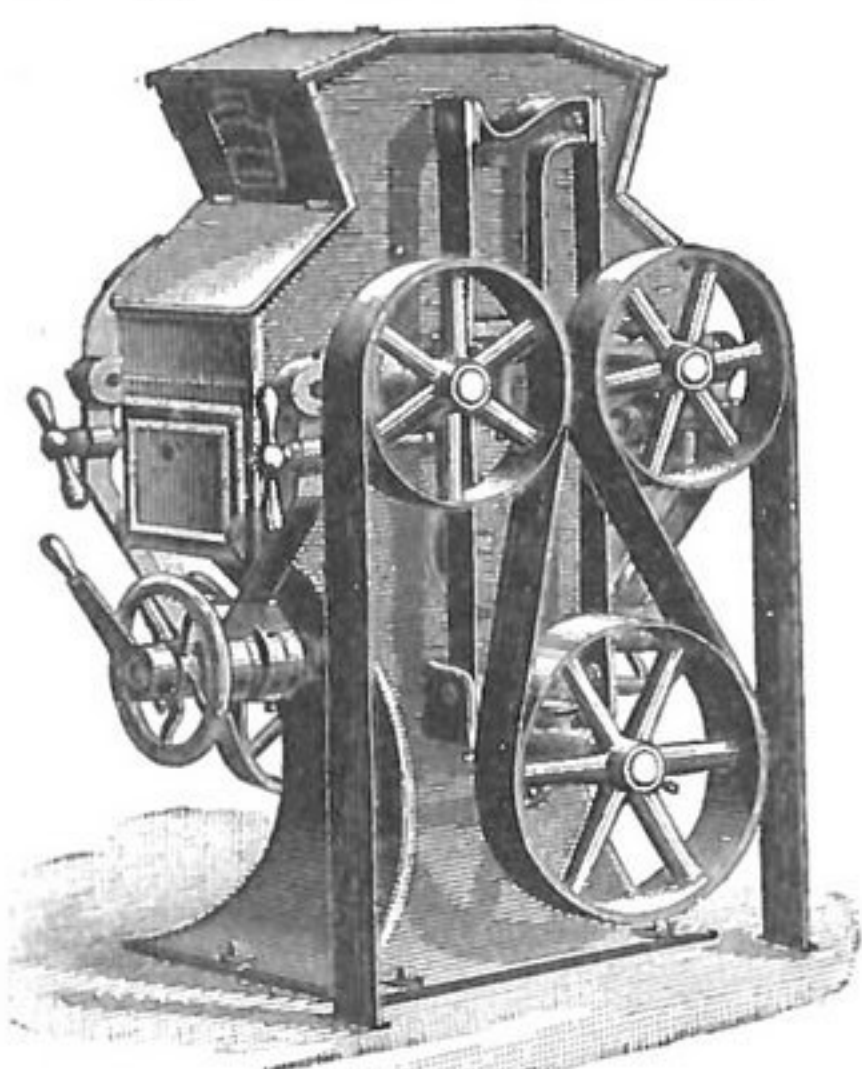
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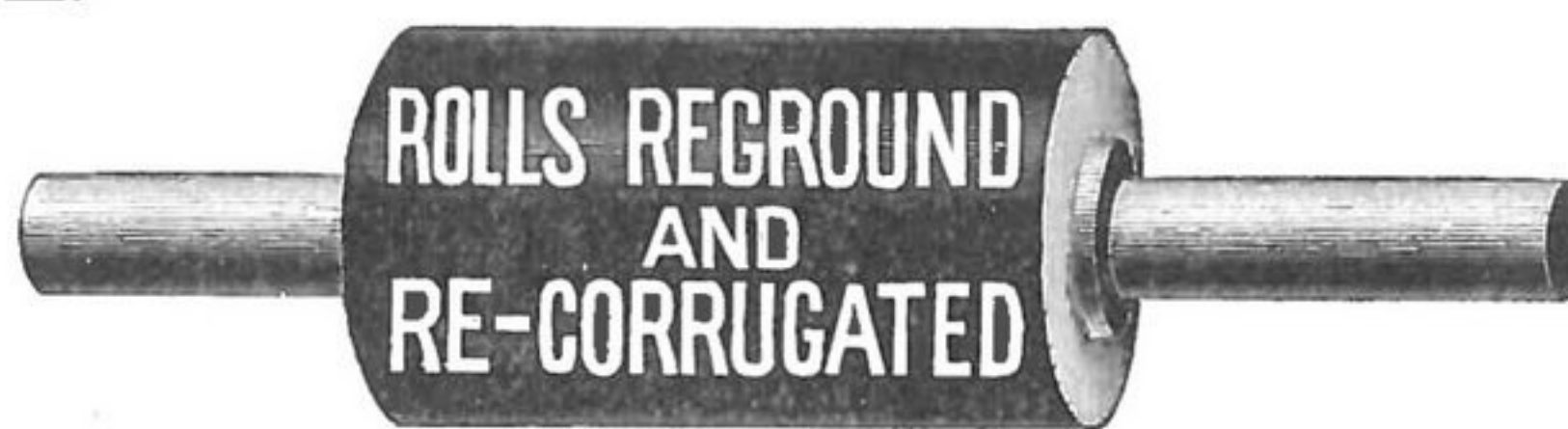
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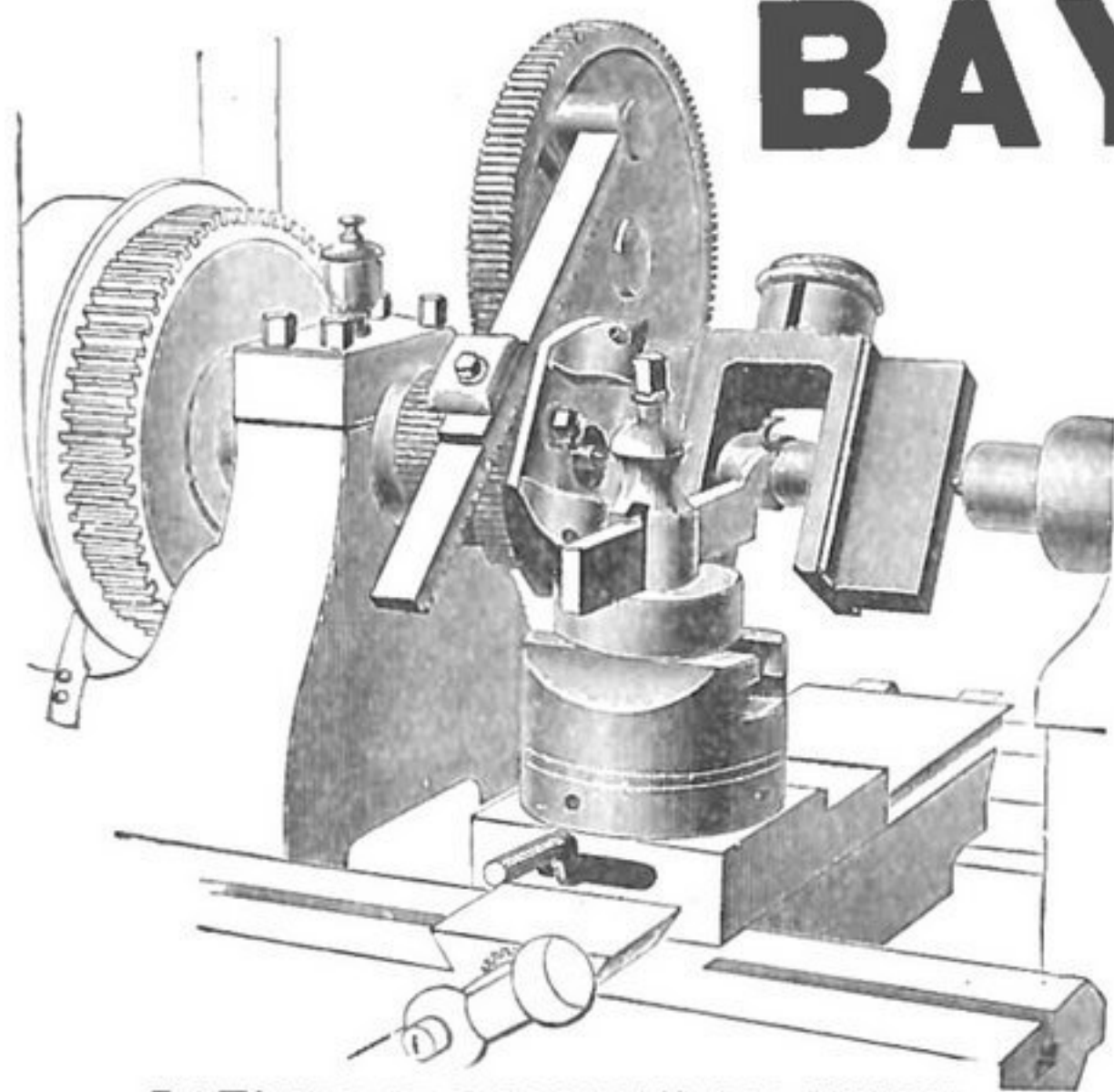
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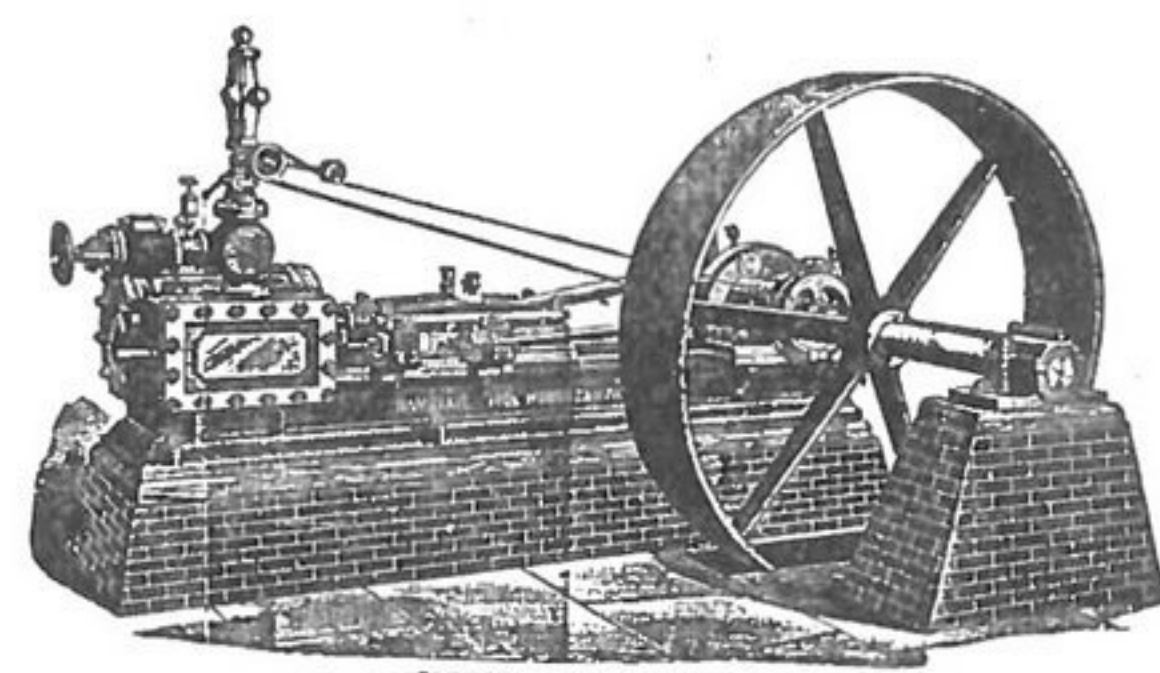
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Engines, Boilers & Hoisting Machines

Also the Patent Cross-Head Machine and Acme Cube Pipe Tongs. We make either Center or Side Crank Engines, on same bed. Make engines from 5 to 250 Horse-Power. Have over 3,500 Engines and Boilers and over 1,000 Hoisting Machines in use, and all giving good satisfaction. Send for Catalogue and Prices.



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The Case Roller Mills. Over 14,000 Pairs in Use.

PLEASE READ OUR DESCRIPTION OF THEM, EVERY STATEMENT OF WHICH IS ABSOLUTELY TRUE.

PLEASE READ WHAT MILL OWNERS SAY ABOUT THEM.



The accompanying cut is a correct illustration of our latest improved Four Roller Mill. For fine work, great durability, simplicity, and general excellence, they stand "head and shoulders" above all others.

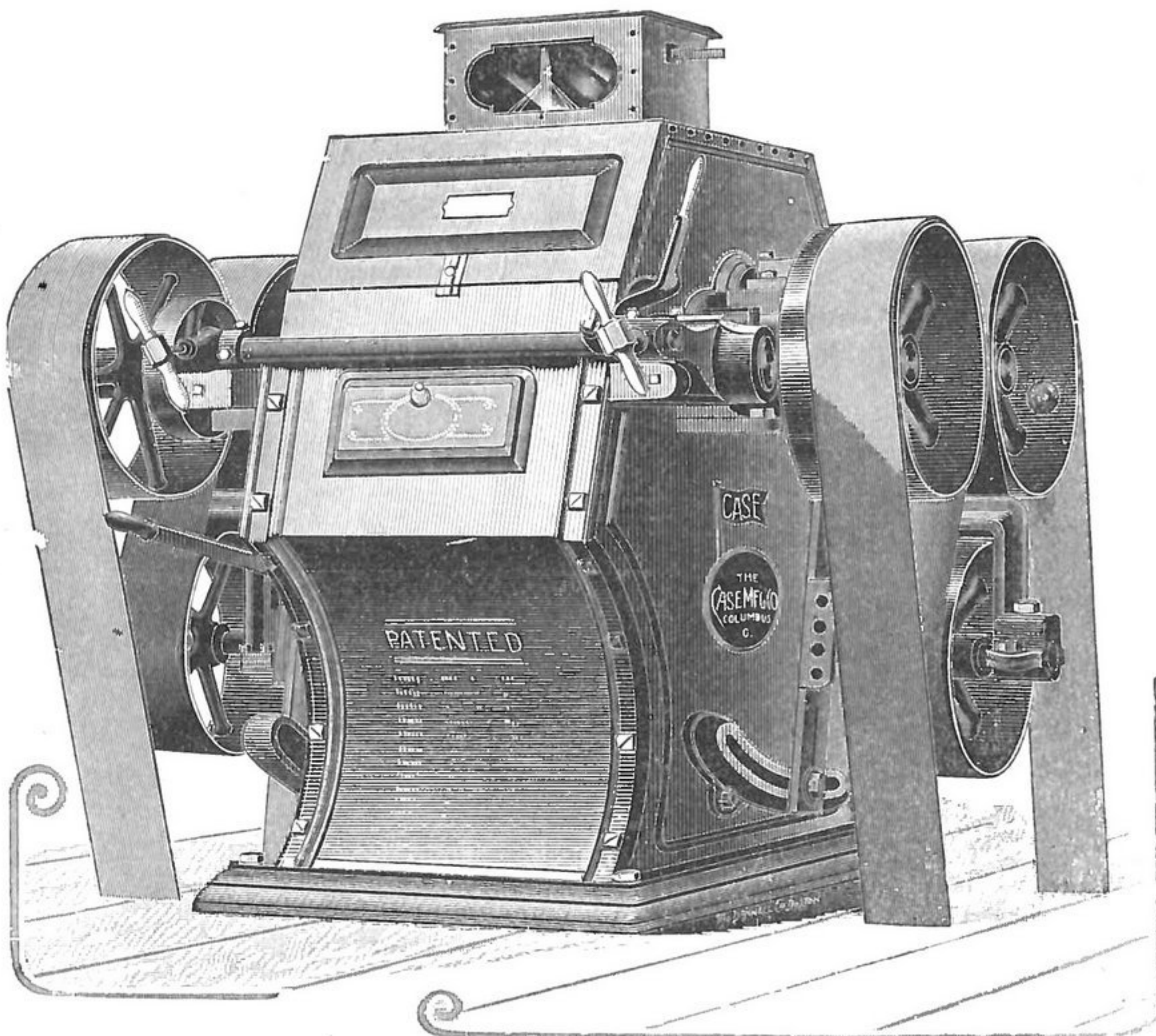
The frame is of iron with a heavy iron base.

The wood-work in top is of select cherry and black walnut, carefully shellacked and varnished.

The handles of adjusting screws and levers are finely nickel plated.

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The adjustments easy, simple and perfect.



The roll bearings are wide and finely babbitted.

The belt drive is positive—no little short belts to slip.

The door for examining stock is a great convenience.

The arrangement for leveling rolls, simple and accurate.

The rolls can be thrown apart their entire length by one movement of the lever, and brought back again to original position, requiring no re-setting or experimenting.

Each machine is provided with our AUTOMATIC VIBRATING FEED, which requires no attention, and never fails to spread the feed the entire length of the rolls.



Please Read These Testimonials.

LITCHFIELD MILLING CO., MANUFACTURERS OF FLOUR. }
LITCHFIELD, ILL., Sept. 14, 1889.

Case Manufacturing Co., Columbus, Ohio.

GENTLEMEN: We are in receipt of your favor of the 11th inst., and in reply would say we have twenty CASE AUTOMATIC FEEDS on our Dawson and Allis Rolls, and we are greatly pleased with them. We have tested the Feeds thoroughly on different materials, and find they work as well on bran and germ and other soft materials, as they do on middlings. We have derived great benefit from the use of them, and can cheerfully recommend them to the milling fraternity.

Yours truly,

J. C. EDWARDS, General Manager.

OFFICE OF A. J. MILLER, PROPRIETOR WHITE ROSE MILLS. }
DEALER IN FLOUR, GRAIN AND MILL FEED. }
METAMORA, IND., Nov. 19, 1889.

Case Manufacturing Co., Columbus, Ohio.

GENTLEMEN: Your Feed arrived O. K., and placed it in working order in a very short time. You have furnished me a daisy Feed. After regulating your Feed, it needs no more attention. It pays for itself in one week over the "Roller Feed" in cleaning up the

stock, and also insuring the superiority at same time. I forward you the amount of bill.

Yours truly, A. J. MILLER.

TREZEVANT, TENN., Feb. 27, 1889.

The Case Manufacturing Co.

GENTLEMEN: We have five double stands of Rolls with Roller Feeds on all of them. A short time ago one of your agents induced us to try one of your Automatic Shaker Feeds. We find that it works much better than the Roll Feed, distributing the material the whole length of the Roll. We heartily recommend your feeds to any one wishing to put in new machinery.

Respectfully yours, FUQUA, HARRIS & CO.

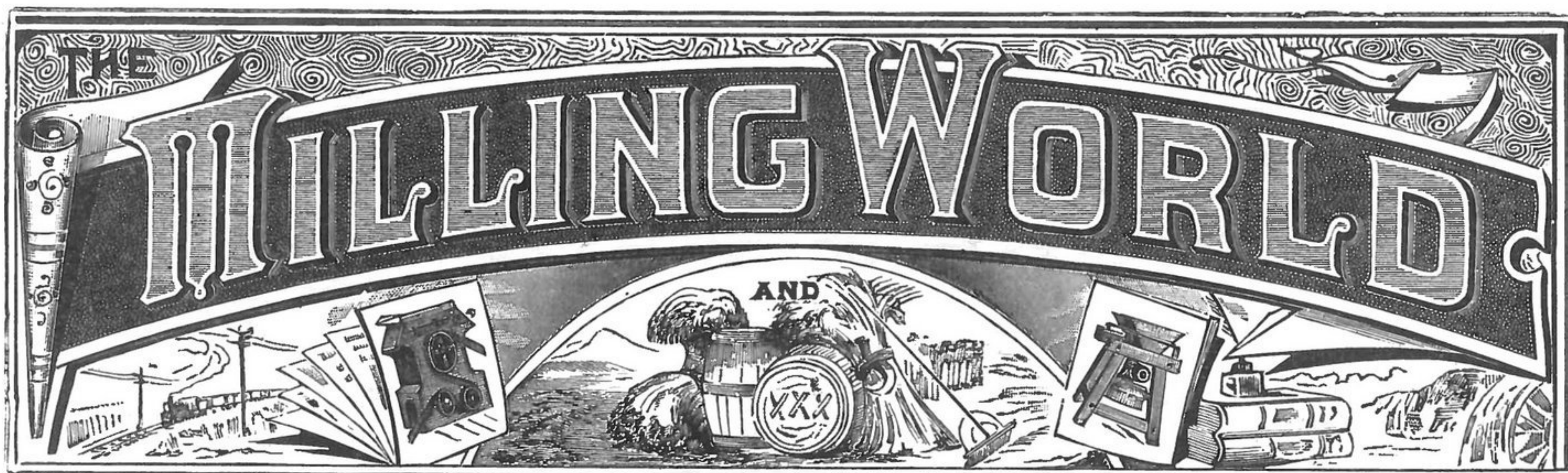
W. C. MANSEFIELD & CO., MERCHANT MILLERS. }
CLEVELAND, TENN., Aug. 29, 1889.

Case Mfg. Co., Columbus, O.

GENTLEMEN: If we were to build a hundred mills, we would not permit any other than the "CASE ROLL" to enter them. They are the best roll on earth.

Yours truly,

W. C. MANSEFIELD & CO.



CHRONICLE OF THE GRAIN AND FLOUR TRADE

PUBLISHED EVERY MONDAY MORNING.

VOL. XXII. No. 21.

BUFFALO, N. Y., JULY 21, 1890.

\$1.50 PER YEAR.

WHAT loving taps the milling journals are giving the dear old National Association! One fans it with a cudgel, another rubs cowhage on its skin, and a third throws virtriol in its eyes, and on the whole they are making life miserable and death attractive to the antiquated concern.

THE Minneapolis "Yahoo," true to its own history, tried to dislodge Secretary Barry and get one of its nearer friends elected to his place. Probably Mr. Barry now appreciates the support of the "Yahoo" at its par value. Probably no man could have done more than he has done to further the interests of the Millers' National Association during his first term, and yet it all went for nothing when the Minneapolis contingent wanted his scalp. He holds his scalp yet, but he may as well prepare to shed it next summer, unless he can win back the Minneapolis element that seems to have been estranged from him without cause.

INFORMATION from farmers and millers indicates that the new winter wheat is not shriveled, as many feared and predicted it would be. Specimens of the new grain from various sections show it to be a plump, fair grain, that will mill easily and produce fine flour. There are some shriveled berries, but they form an inconsiderable part of the whole. In some sections the wheat is pronounced "as fine as ever was grown." Farmers complain that the yield is not large, while "the grain is good, what there is of it." Of course the dealers say nothing on that point. So long as they get the grain to handle, it never interests them to know whether it grew 9 or 29 bushels to the acre. The diminution in yield does not mean all loss to the growers, for to-day wheat is bringing 10 cents per bushel more on the farm than it brought last year, which in many cases will equalize matters very comfortably.

ACCORDING to recent reports from Great Britain, the wheat and other cereal crops in that country are anything but promising. Excessive rains have combined with chilly weather to retard growth and to produce mildew, and the farmers are discouraged. American wheat supplies will be called upon to furnish England large quantities during the coming year. Russia has promise of only an average crop. Austria-Hungary will not have an average crop. Germany is reported below the average. India is very short. Everything in the Asiatic and European wheat situation points to a large call next autumn and winter for American wheat for the importing countries of Europe. We believe the United States crop will be large enough to enable us to answer all calls. Of course the 1890 crop is not yet "assured." The winter-wheat crop is practically made, but the spring-wheat crop has yet to run the gauntlet of possible damages by storm, drouth, frost, heat and insect pests, and it is never safe to predict. Under all ordinary circumstances, however, we shall have a good amount of good wheat above our own needs, and it looks as though it will all be needed for Europe.

DOES any flour-maker believe that the restriction of output proposed by the millers at the Minneapolis convention could be so manipulated as to bring about the intended re-

sults? Have the men who propose the restriction taken into account the aggregate capacity of the mills, great and small, outside of the association? Suppose there are 300 mills in the agreement, what will be the effect of their shutting down on the 17,000 or more mills outside of the agreement? THE MILLING WORLD has shown the mills of this country, grinding 30 barrels each daily, can turn out 186,150,000 barrels of flour, and even at 20 barrels each a day their output would be 124,000,000 barrels a year. The National Association claims a daily capacity of 141,200 barrels, or a possible yearly production of 51,538,000 barrels a year. Now, allowing all the association mills to shut down for one year from August 1, 1890, what would be the condition of the grain and flour trade on August 1, 1891? If all the mills in the United States, at 20 barrels a day each, can grind 124,000,000 barrels, the subtraction of the total production of the association mills, 51,538,000 barrels, would leave 72,462,000 barrels produced between the dates mentioned. The average production of the country is just about that number of barrels. Hence it would appear that the boasted "big" mills could be dispensed with and never missed. Raising the average of all the mills to 30 barrels a day, the output would be 186,150,000 barrels, and the elimination of the association total would leave a balance of 134,612,000 barrels, or nearly twice what the country can use for consumption and export, and calling for a crop of 673,000,000 bushels of wheat, while the annual average is about 460,000,000 bushels. The "National" orators may have figured out their own belief in their own powers to their own satisfaction, but, when once they agree upon and act upon a genuine shut-down, they will find that they have built their dam so far down the stream that it can never back the water up to their wheels. It may startle them to assert to them that the utter extinction of their "big" plants would in no degree curtail the available stocks of flour in the United States, but they can swallow their egotism and cipher it out to their own conviction in short meter. THE MILLING WORLD has heretofore asserted, and it now asserts again, that the mere shutting down of 200 or 300 mills can not bring about the results aimed at by these men, so long as they have not control of the fountain, the supply of wheat. If the association mills, with their capacity of 51,538,000 barrels, calling for about 257,000,000 bushels of wheat grain, can manage to get control of at least that amount of wheat at the close of the harvest, and so prevent their numerous small competitors from obtaining grain to keep their mills running to full capacity, they would be in a position to attempt what they can never sanely attempt so long as the supply of wheat is open to all. Even should they attempt to "corner" or "trust" the wheat supply, public indignation would drop on their heads like red-hot brickbats falling out of the skies. It is evident that there are mountains of difficulty in the way of these men, mountains too high to be scaled, and too quicksandy to afford safe tunneling. Output restriction by 200 or 300 mills is only one link in a score, and it is certainly the weakest link in the chain. Restriction of output will fail. Where there is one argument indicating its success, there are twenty assuring its failure. The outlook for the restrictors is discouraging.

The DAWSON ROLL WORKS CO.

FOUNDERS & MACHINISTS,

—MANUFACTURERS OF THE—

Dawson Roller Mills

—AND FURNISHERS OF—

CHILLED IRON ROLLS

WITH DAWSON PATENT CORRUGATION.

ALL STYLES OF FLOUR MILL ROLLS RE-GROUND AND
RE-CORRUGATED WITH ANY FORM OF CORRUGATION.

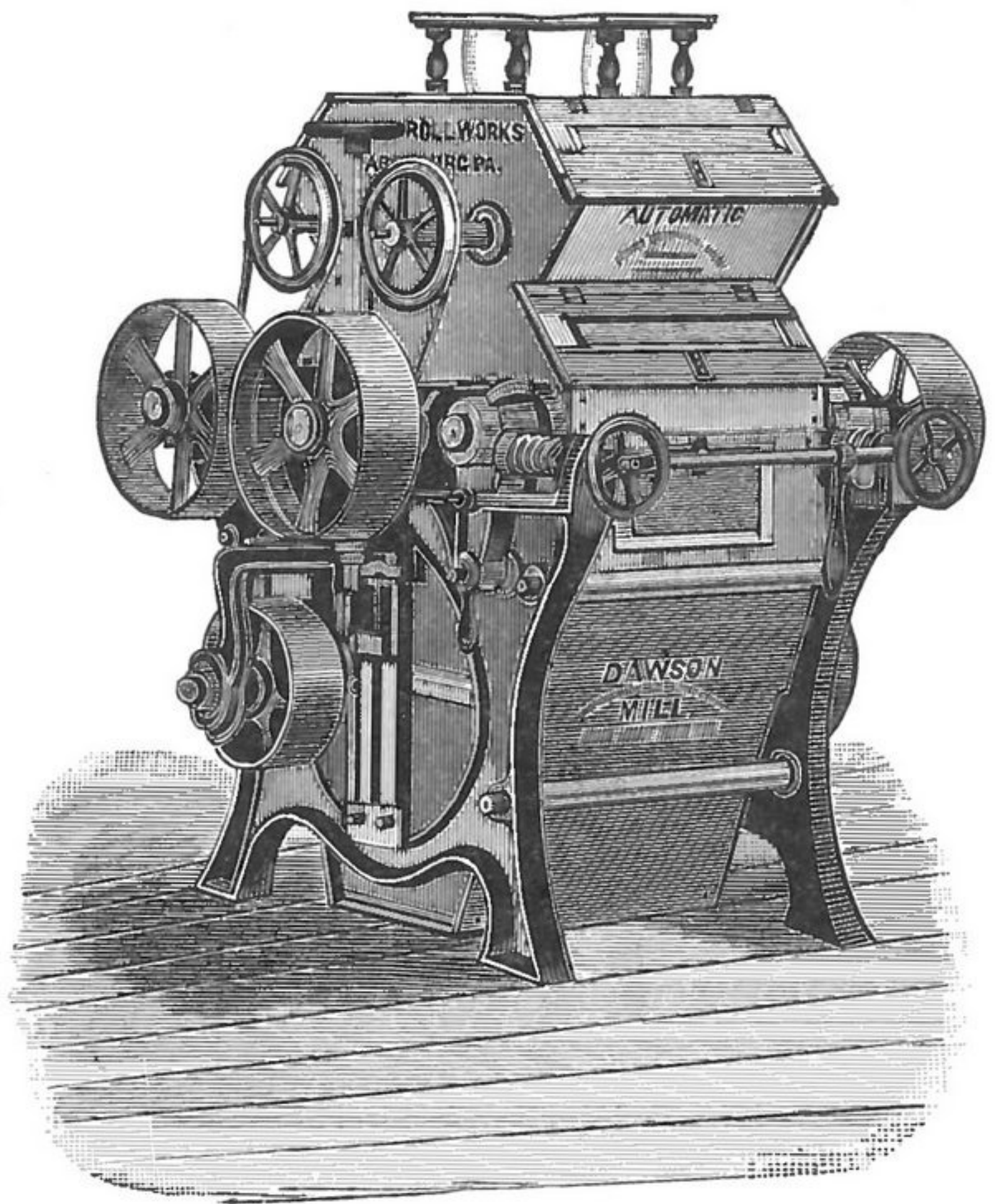
We have had large and extended experience in grinding and corrugating chilled rolls for milling, and have one of the largest and most improved plants in the country for this work, which enables us to meet the most exacting requirements of the trade promptly.

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DAWSON ROLL WORKS CO.

South and Short Streets,

HARRISBURG, PA.



BEST STEEL SAFETY MADE FOR
\$35

Easiest LADIES' Tricycle Known

Our Tricycles the Only Machine ever Recommended by Physicians for Ladies and Girls of a Delicate Constitution.

THE BUFFALO TRICYCLE CO.

Manufacturers of Ladies' and Girls' Tricycles, Ladies' and Boys' Safety Bicycles, Etc., Etc.

640 Linwood Ave., **BUFFALO, N. Y.**

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Advertising Agent

FOR MANUFACTURERS.

TRADE JOURNALS A SPECIALTY.

P. O. DRAWER 5323. *Boston, Mass.*

As Agent for Advertisers instead of Papers, I obtain the Best Rates Possible for my Customers.

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IS MADE BY THE
QUEEN CITY PRINTING INK CO.
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BUY THE BEST.

Satisfaction ➤

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AMERICAN INJECTOR CO., NO. 175 Larned St., West, **DETROIT, MICH.**



PUBLISHED EVERY MONDAY. OFFICES: { Corner Pearl and Seneca Streets,
Over Bank of Attica.
McFAUL & NOLAN, - - - PROPRIETORS.
THOMAS MC FAUL. JAMES NOLAN.

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In the United States and Canada, postage prepaid, \$1.50 Per Year, in advance; remit by Postal Order, Registered Letter, or New York Exchange. Currency in un-registered letter at sender's risk.
To all Foreign Countries embraced in the General Postal Union, \$2.25 Per Year, in advance.

Subscribers can have the mailing address of their paper changed as often as they desire. Send both old and new addresses. Those who fail to receive their papers promptly will please notify at once.

ADVERTISING.

Rates for ordinary advertising made known on application.
Advertisements of Mills for Sale or to Rent; Partners, Help or Situation Wanted, or of a similar character One cent per word each insertion, or where four consecutive insertions are ordered at once, the charge will be Three cents per word. No advertisement taken for less than 25 cents. Cash must accompany all orders for advertisements of this class.

Orders for new advertisements should reach this office on Friday morning to insure immediate insertion. Changes for current advertisements should be sent so as to reach this office on Saturday morning.

EDITOR'S ANNOUNCEMENTS.

Correspondence is invited from millers and millwrights on any subject pertaining to any branch of milling or the grain and flour trade.

Correspondents must give their full name and address, not necessarily for publication, but as a guarantee of good faith.

This paper has no connection with a millfurnishing house and aims to represent the trade without prejudice, fear or favor.

Address all communications

THE MILLING WORLD,
BUFFALO, N. Y.

Entered at the Post Office, at Buffalo, N. Y., as mail matter of second-class.

SITUATIONS WANTED.

Advertisements under this head, 25 cents each insertion for 25 words, and 1 cent for each additional word. Cash with order. Four consecutive insertions will be given for the price of three.

SITUATION WANTED.

Head miller with over 20 years experience want to make a change this spring. Address, A. MILLER, 67 Weaver Alley Buffalo, N. Y. Ad-4t

SPECIAL ADVERTISEMENTS.

Advertisements of Mills for Sale or Rent, Partners Wanted, Machines for Sale or Exchange, etc., etc., cost 1 cent per word, for one insertion, or 3 cents per word for four insertions. No order taken for less than 25 cents for one insertion, or 50 cents for four insertions. Cash must accompany the order. When replies are ordered sent care of this office 10 cents must be added to pay postage.

FOR SALE.

Water-power grist and feed mill for sale, at wharf and railroad, near New York. Established business, \$4,000. J. W. ATWATER, 150 Broadway, New York. 1720

VALUABLE ENGLISH PATENTS FOR SALE.

THE COCHRANE ONE BELT DRIVE.

The patents for England issued to the late W. F. Cochrane for improvements in roller mills. Address, J. V. TEETZEL, Hamilton, Ontario, Canada. 1316

FOR RENT.

Clinton Mills, at Black Rock, Buffa'o, for rent on reasonable terms, recently repaired and put in good order. Apply to CHAS. DANIELS, over 311 Main Street, Buffalo, N. Y. 6tf

PARTNER WANTED.

A man with capital to take an interest in a new 50-bbl. Roller, Flour and Feed mill. First class water-power. Every thing entirely new and in first class running order. A practical miller preferred. For further particulars address BILLINGS, RED-HEAD & CO, Avoca, Steuben County N. Y. 1215

FOR SALE AT AUCTION.

Flouring mill, water and steam power, will be sold at public auction on July 17th, 1890, at 2 o'clock P. M., on the premises. Water power good for nine months in the year. Capacity sixty barrels. A good established custom and exchange trade. Case roller process. Death of proprietor cause of sale. Terms: one-third cash, one-third in one year and one-third in two years, with six per cent interest, secured by mortgage on the premises. For particulars, address J. H. HATCH, Piqua, Ohio. 1920

MILL MACHINERY FOR SALE.

One No. 0 Standard Combined Separator, Smutter and Brush Machine; new, best make.
One 20-Inch Under-Runner Portable Mill, French Buhr Stone, capacity 10 to 12 bushels per hour; new, best make.
One 14-Inch Vertical Feed Mill; best make, new, a bargain.
One No. 6 Dustless Separator; new, a bargain.
One No. 1 Full Rigged Combined Dustless Separator; new, a bargain.
Four Corn Cob Crushers, right or left hand, driven from above or below, best make; capacity 40 to 60 bushels per hour.
Three No. 1 Corn Shellers, capacity 200 to 300 bushels per hour; new.
One No. 2 Purifier. New. Best make. A bargain.
One 20-Inch Portable Mill.
One 18-Inch Double Gear Portable Mill.
For particulars address, FRANK SMITH, care of THE MILLING WORLD, Buffalo, N. Y. 5tf

THE Minneapolis convention was a great success in all the entertainment features, and in all other features it was a great-great-grand farce. The managers could be thumbless and fingerless and yet have enough thumbs and fingers to enumerate all the valuable achievements of the gathering.

AGAIN we are astonished to see the British milling journals coming regularly by mail, just as though they are unconscious of the fact that Editor Cawker, of Milwaukee, disapproves them and does not find their contents worth reprinting on "this side of the water." Editor Cawker will evidently be forced to put his disapproval in some more effective form.

KANSAS CITY enterprise is all right, but when Editor Hall, of the "Modern Miller," takes a dive into the Pierian Spring, or plumes his pinions for a flight to Parnassus, we object to the liberties he takes with the eternal improprieties in rhyming "shortage" with "mortgage," "acre" with "elevator," and "hustles" with "bushels," as he does in his excellent July poem on the inspiring subject of "Kansas Wheat." So now, Brother Hall, cease to sin, or "Bang" of Duluth will swoop down on Kansas City, like the Assyrian "wolf on the fold," and do you up poematically-rhetorically-rhythmatically!

FEW political steps have more significance for the commercial world than the hostile attitude of Hon. James G. Blaine towards the McKinley Bill.—*Montreal "Canadian Journal of Commerce."* Fiddlesticks, neighbor! Have you read your American exchanges so carelessly that you do not know that Secretary Blaine is not only not in a "hostile attitude" towards the McKinley Bill, but that he is warmly in favor of it, and that his proposal to ask South American countries not to discriminate unfairly against their United States customers has no more to do with the McKinley Bill than it has to do with the last manifesto of the Digger Indian Chief? Don't go off half-cocked on American subjects. You say: "The advantage to Canada is apparent. The McKinley Bill was especially leveled at Canadian trade." Permit us to say that such an utterance is rot. No bill in this country is "leveled at Canadian trade." If protection to American industries means hurt to Canadian industries, that is not the fault of the United States. It is the misfortune of Canada. You entirely misunderstand the McKinley Bill and American sentiment.

ABOUT the most amusing thing to be seen in connection with the crop reports of Statistician Dodge of the Agricultural Department is the attitude of his critics. These critics are guessers pure and proper. There is not one of them that goes to either the trouble or the expense of actually gathering enough real information to justify an estimate of the wheat crop, or of any other crop. Yet they all make estimates, positive estimates, in some cases before the wheat is in the ground, in others before it has shown above the soil, and always long enough before maturity to cast suspicion upon all totals. These amusing critics, without any information, always open the season with a united raid on Statistician Dodge. The bull critics denounce his estimates as grossly exaggerating. The bear critics tear him up for minimizing in his estimates. Not one of the critics has the least reason imaginable for attacking the Dodge estimates, which are always based on actual information and conditions. One of the most comical of these guessing critics is the presumptuous "Bradstreet's," which is forever maniacally rending its garments over the Dodge reports. Without anything besides its own guesses, that journal drivels long columns of foolish stuff showing that the Dodge totals "can not" be correct, and all because the Dodge totals, representing actual information, do not agree with the totals of his fool critics, representing only crazy guess-work. We may ask, without danger of being considered cynical, if no dependence can be placed upon the reports of Statistician Dodge, who has information from thousands of points, what possible dependence is to be placed on the guesses of the bumptious, presumptuous egotists who persist in thrusting those guesses into public notice?

THE COMPOSITION OF WHEAT.

I.

We may state, at the commencement of our paper, that as different seasons differ almost infinitely at each succeeding period of their advance, and that with each variation the character of development of a wheat plant will also vary, tending to luxuriance or to maturation, that is, to quantity or to quality, as the case may be, so the wheat grain and the different milling products must also be influenced by methods of growth and after treatment of the crop. In fact, the results adduced will show how many are the modifying causes in the hands of both the farmer and the miller, and to a certain extent may point to the direction in which advance should be made. The following summary, table I, brings prominently to view some important facts, and indicates some important conclusions, derived from the investigations of Sir J. B. Lawes and Professor J. H. Gilbert, at Rothamsted. There is there given for each of three differently manured plots, in the experimental wheat field, which has now grown forty-five crops of wheat in succession, the highest and the lowest weight per bushel of the grain, and the percentages of albuminoids calculated in the dry grain; also the highest and lowest percentages of potash and phosphoric acid in the grain ash, in sixteen consecutive years:

TABLE I.
IN WHEAT GRAIN.

	Weight per bushel.		Albuminoids.	
	Highest.	Lowest.	Highest.	Lowest.
Without manure.....	62.7	45.9	13.6	10.3
Farmyard manure.....	63.8	51.1	13.7	9.5
Ammonium salts alone..	62.6	48.6	15.5	10.6

IN WHEAT GRAIN ASH.

	Potash.		Phosphoric Acid.	
	Highest.	Lowest.	Highest.	Lowest.
Without manure.....	35.5	29.7	52.6	45.6
Farmyard manure.....	35.5	27.2	54.7	47.1
Ammonium salts alone..	35.9	28.1	52.9	43.4

A glance at the foregoing results will show that not only in the weight per bushel and of albuminoids in the grain, but also in the case of both constituents in the grain ash, there is a much wider range of variation with the same manure in different seasons than there is under each of the three very characteristically different conditions as to manuring. Both in the wheat grain and in the wheat grain ash, therefore, there are very great differences in the composition according to season, and very much less difference in the corresponding constituents according to manure. With few exceptions, a similar result is observed with other constituents. What, then, is the significance of these facts? In the first place, it is that the character of development of a wheat crop left to ripen depends very much more upon season and climate than upon manuring. Indeed, if a crop of wheat grows side by side with another of exactly the same description, but yielding under the influence of manure twice the amount of produce, and both under such conditions of season that each fully and normally ripens, the composition of the final product, the seed, will be very nearly identical in the two cases. In other words, there is scarcely any difference in the composition of the truly and normally ripened seed. But, as variations of season affect the character of development and the conditions of maturation, there may obviously be, with these, very wide differences in the composition of the product. These results are not only instructive but are of great practical value to the miller and the baker, as explaining the reason of the great differences in the amount of gluten in various wheats and flours.

It has generally been found that, among other circumstances, a relatively high temperature at the ripening period of wheat is favorable to a high percentage of gluten. The mutual adaptations of heat and moisture throughout the various stages of the progress of the wheat plant are, however, so almost infinitely varying, even from season to season in one and the same locality, that it is not surprising there should be many exceptions to any sweeping generalization in regard to widely differing localities. The following analysis by Clifford Richardson of the amount of gluten in the moist and in the dry conditions, in three different

descriptions of flour and in the original wheat grains, of three American wheats, grown in different localities in the same season is of interest as bearing upon this question:

TABLE II.
NORTHWEST HARD SPRING WHEAT.

	Gluten per cent.	
	Moist	Dry.
Original wheat (clean).....	32.31	11.88
Bakers' flour.....	51.21	16.97
Patent flour.....	36.14	10.85
Low-grade flour.....	10.01	4.26

VIRGINIA WINTER WHEAT

Original wheat (clean).....	30.00	11.03
Bakers' flour.....	35.04	11.30
Patent flour.....	29.55	9.08
Low-grade flour.....	35.96	12.81

OHIO WINTER WHEAT.

Original wheat (clean).....	20.93	10.34
Bakers' flour.....	38.29	12.30
Patent flour.....	35.52	10.76
Low-grade flour.....	28.37	9.96

We believe it is generally found in practice that the flours high in gluten do not produce the most bread, unless, at the same time, they possess a high degree of dryness, for it is upon the dryness of the flour that the yield of bread mainly depends, and not so much upon the gluten. It is worthy of notice that English-grown spring wheat has sometimes the character of imparting strength to the flour of an inferior winter-sown wheat. And it may be stated generally that the highly nitrogenous foreign wheats have the admitted character of imparting strength to inferior flour, and they are thus highly valued for the purpose of admixture with home-grown grain imperfectly developed and matured. In a very comprehensive investigation of the composition of American wheats, conducted by Clifford Richardson, under the auspices of the Department of Agriculture at Washington, he finds a generally low average percentage of albuminoids in American compared with European wheats, and he concludes that this is indication of inferiority of quality, in many cases due to a deficient supply of nitrogen by the soil. But Messrs. Lawes and Gilbert believe it to be more probably due to enhanced formation of starch in the grain under the influence of high ripening temperature. They further conclude that high percentages of total nitrogenous substance in the grain is by no means a characteristic of the wheats held in the highest estimation either by the miller or the baker, and that, so far as both the baker and the consumer are concerned, the condition of the nitrogenous matter is of more importance than their total amount.

Comparing one description of wheat with another, the one with a relatively high percentage of nitrogen may be the better, provided the grain be at the same time fully ripened and not too horny. But when the percentage exceeds a certain limit, the grain is either too hard, or there is deficient storing up of starch (carbo-hydrates), and an unfavorable condition of the nitrogenous and glutinous substances. In fact, comparing the grain grown from the same description of seed, but on different soils, or in different seasons, high percentage of total nitrogenous matter is almost invariably coincident with inferior maturation of the berry. Within the range of the white flours there is very generally a slight increase in the percentage of nitrogen and of albuminoids, with also an increase of the phosphoric acid in the ash, proceeding from the finer to the coarser milling products. There is a more marked increase in the percentage of nitrogen in the more branny products, though it is not quite so high in the purest bran as in the products next above it in the series, the greatest concentration of nitrogenous substances being immediately below the pericarp itself.

TABLE III.

	Albu- minoids.	Nitrogen.	Phos- phoric Acid.	Ratio of Nitrogen to Phos. Acid.
	Per cent.	Per cent.	Per cent.	
Whole wheat.....	12.43	1.99	1.03	1.93
Bran.....	15.40	2.46	1.04	2.36
Middlings.....	17.50	2.80	1.12	2.50
Low grade flour.....	9.98	1.60	0.30	5.33
Bakers' flour.....	13.13	2.10	0.33	6.36
Patent flour.....	10.68	1.71	0.19	9.00

We thus learn that, starting with a ratio of 1.93 in the whole grain, under every purification of the milling product

the ratio of nitrogen rises until it reaches the patent flour; that is to say, as we approach the more perfect products there is a greater loss of phosphates than of nitrogen. In the flours from the reduction of the different grades of middlings the change in the ratio is found to be gradual, and corresponds closely to the inverse change in the amount of phosphates in the ash. A high ratio denotes, therefore, a deficiency in phosphates, and this is the chief fault with the high-grade flours; and it is a question whether it would not be better to add phosphoric acid in the process of bread making, as is sometimes done in America, than to include the whole of the more phosphatic portions of the wheat grain.—London "Miller."

ON THE BRACING OF STEAM-DOMES.

"The Locomotive."

A short time ago our attention was called to a steam-dome arranged as shown in accompanying cut. It was 36 inches in diameter and had a flat wrought-iron head, which was braced to the shell of the drum by four flat braces, each of which was $2\frac{1}{2}$ inches wide and $\frac{5}{8}$ of an inch thick. These were each twelve inches long and were attached to the head and shell in the manner shown in the cut by a single $\frac{3}{4}$ -inch rivet. Two $3\frac{1}{2}$ -inch openings were made in the head for steam connections, each being re-enforced by a $\frac{7}{8}$ -inch plate, 7 inches in diameter. The boiler, which was 66 inches in diameter and $\frac{3}{8}$ -inch thick, communicated with the drum by a circular opening 15 inches in diameter, which was not re-enforced. Since the steam pressure came equally upon the upper and lower sides of that part of the shell which lay within the dome, there was no strain produced in it and therefore no need of bracing. Nevertheless, four braces had been put in similar to those above, except that they were 10 inches long and running from the shell of the drum to the edge of the hole in the boiler. Each of these was secured by a $\frac{1}{2}$ -inch rivet at the upper end and by a $\frac{5}{8}$ -inch bolt at the lower end. Allowing three inches all around the outside of the head of the dome as the amount that can be

safely considered to be stiffened sufficiently by the flange, we have left a 30-inch circle which is to be stayed by the braces. The area of this circle in round numbers is 707 square inches, and as it is proposed to carry 80 pounds steam pressure, the total pressure of the steam against the area to be stayed was $80 \times 707 = 56,560$ pounds. The sectional area of each of the braces was 1.56 square inches, so that, if we allow 7,500 pounds as the safe working strain on the iron per inch of section, the safe working strain on each brace would be $1.56 \times 7,500 = 11,700$ pounds. It would be safer, therefore, to have 5 braces instead of 4, or, better yet, to make the braces smaller and more numerous, so as to give the head more points of support. In the actual construction there was a circle on the head 22 inches in diameter that had no braces within it. This circle is indicated by the figures, though the engraver has shown it slightly out of proportion. The most important point to be noticed is, that the ends of the braces are secured by single rivets only, which are entirely inadequate to bear the stress that comes upon them with safety. A $\frac{3}{4}$ -inch rivet has a sectional area of 0.442 square inches, and if we allow it 7,500 pounds of safe working strain per square inch, it will bear $7,500 \times 0.442 = 3,315$ pounds. Four such rivets will, therefore, safely bear $4 \times 3,315 = 13,260$ pounds, while, as we have seen, they are called upon in the construction shown in the cut to carry a total load of 56,560 pounds, that is, they are loaded to over four times their safe working strain. We have assumed in this calculation that if the rivets failed they would

fail by pulling apart in the shank. In reality the heads would pull off before the shank parted, so that the bracing is even less secure than the foregoing calculation indicates. The 15-inch hole cut in the boiler reduces the strength of the shell, and if high pressures were to be carried it would be necessary to re-enforce it; but in consideration of the fact that 80 pounds was the highest pressure it was proposed to carry, we did not consider it imperative that it should be re-enforced in this particular case. The principal points about the dome we have illustrated are that in its original condition it was unsafe, and that it could have been made safe in the first place without much extra work, if the useless braces running from the shell of the dome to the boiler had been left off, and some extra ones had been put into stay the top, in their stead. More rivets should be used in attaching the braces to the shell and head, and (with our apologies to the advocates of the style of brace shown in the cut,) crow-foot braces would be much stronger and better. The "hinge" brace, as we call the kind shown, must yield and straighten out at the angles before it can exert much holding power.

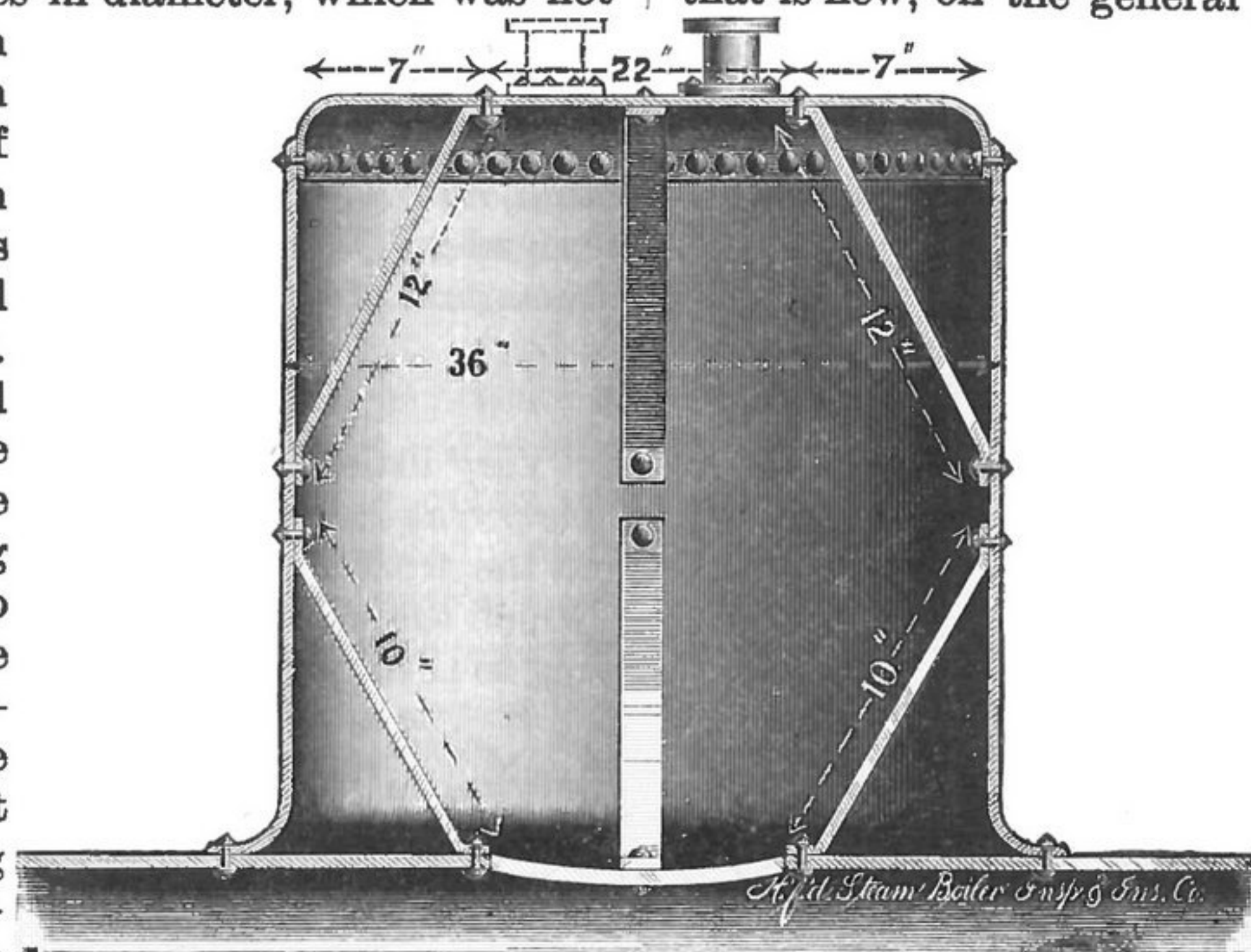
POINTS IN MILLING.

"MILL-FURNISHING highwaymen," as one irascible old miller recently called the agents of the milling machinery makers, find two well-marked classes of old fogies among millers. One class is that of the "old" old fogy, who buys nothing that is new, on the general principle that "what was good enough for my father and grandfather is good enough for me." The second class contains the "new" old fogy, who buys everything that comes along, on the principle that "it is not possible to get too much of a good thing."

THESE extreme types are numerous enough to justify mention and a comment on their influence. The "old" old fogy is the terror of the army of agents. After one or two encounters with him, the agents give him a wide berth, leaving him entirely to the new, green, fresh, untraveled, uninitiated, unsophisticated men

on the road. He is the reactionary, the mossback of the fraternity. His mill is generally ramshackle, his patrons of the least desirable class, his product the coarsest and poorest, and his whole career a mistake from beginning to end. He is forever at least 100 years behind the procession, and he does not know, or care to know, that he is so far behind, or that he is losing money, time, business, comfort and contentment by being so entirely out of touch with modern milling. His influence, so far as he exerts any, is bad, for he sets himself squarely against every attempt to improve milling.

THE "new" old fogy is more numerous and even more pernicious. He goes headlong into "new" things, never stopping to inquire the value of the new things to him personally. When changes are introduced, he goes to the extreme. In machinery he will heedlessly buy twice what he can profitably use. In power plant he will go to twice the necessary outlay. In system he will rush to the most elaborate length or the most ridiculous brevity. He is always an extremist. He never tries to adopt a golden mean. He is plucked by the manufacturers, who overload him with machines. He is plucked by builders, who plan his mill twice as large as he needs. He is the prey of everybody who has machines or processes to sell. The influence of "new" old fogy is bad, because he exerts himself to make unnecessary outlays, and the result is an unsettling of milling and a complication of factors that ought to work uniformly towards a definite code of practice. He is a disorganizer by



AN IMPROPERLY BRACED HEAD.

nature, without malign intent, of course, but a disorganizer, all the same.

THESE two types of millers are known to every agent. In the mill of the "old" he finds too little of everything, and he can not induce him to put in enough. In the mill of the "new" he finds too much of everything, and he can always count on selling him more useless machinery. Both "old" and "new" old fogies are booked to fail. One will fail because he ignores the demand of his day for better flour. The other will fail, because, while recognizing the modern demand, he goes too far in preparing to answer the demand. The first has no tools to work with. The second invests in too many tools, loads himself up ruinously with unnecessarily large production cost, and fails to make both ends meet.

I THINK most of the men who fail in the milling business belong to these two classes of old fogies. The very fact that they err so greatly in the important essentials referred to implies that they will err at every point in their business where judgment must be exercised. Men of these classes will make as bad bargains in buying or selling as they make in grinding. A succession of bad bargains and milling processes must end in disaster. Even a "born fool," with the traditional "luck of fools," could not play a losing game daily and come out ahead at the end of the year.

I TAKE back some per cent. of what I have said about, or presumably against, automatic sprinklers in flouring-mills since reading the Christian sprinkler letter attached to my query in THE MILLING WORLD. I am not opposed to sprinklers that sprinkle, and sprinkle well and thoroughly, just when the sprinkling will prevent a disastrous fire. If I were opposed to the automatic sprinklers on principle, I might offset the alleged saving of the Minneapolis mill by sprinklers by quoting the failure of the sprinklers to save the two great flour-mills at Winona, in the same State. If I were inclined to be cranky or faddistical on the point, I might ask: If one case of saving a mill settles the merits of the sprinkling system and of automatic sprinklers, what is settled by the failure of the sprinklers in the case of the two Winona mills inside of a year?

IN the case of mills two things are to be looked after: 1. The prevention of fires. 2. The early discovery and prompt extinction of fires. I take it that the prevention is the thing to receive first and greatest attention. I have repeatedly pointed out in these columns the great danger of swift-moving automatic machines left unwatched, especially in buildings filled with floating dust. Careful efforts to prevent mean that no machine known to be dangerous shall be left unwatched, that no naked lights shall be allowed in dusty places, that no single bearing shall be ignored in the scheme of general watchfulness, and that everything demanded by common-sense shall be done to render "mysterious" fires impossible or, at least, improbable. Fires generally start in a small way. The material is at hand. The conditions causing fire are known. Watchfulness would always detect the start. When I read that "the whole upper stories were in flames at once beyond control," I know that it has taken some minutes for the small spark to grow to uncontrollable flames, and I also know that, between the time when the small spark started, from friction of unlubricated parts or concussion of broken parts, and the time when two or three stories of the mill were wrapped in flames, there was a period in which the necessary watching was omitted. Every one knows that watching would have revealed the danger at once and enabled the watchman to smother the spark.

AFTER the fire is under way, extinction takes the place of prevention for notice. Here the bucket, the overhead tanks, the hose and the automatic sprinkler come into the question. Discussion of means of extinction becomes almost valueless, when we consider that a partially burned and wholly wet-down and generally nasty mill is an unpleasant thing to have on hand. I often think that a "clean burn-down" is a

far more desirable thing than a half-way cindering job in a mill. Even sprinklers, should they "save" the mill, leave it in a condition that means discomfort long after reconstruction, unless the owner removes all that the fire left. Timbers and flooring soaked with water and filled with floury paste mean sourness, fetidness, fustiness, insects and generally bad air for months. No miller can "afford" to burn out, but a miller can better afford to burn wholly out than to burn partly out.

EARLY discovery of fires is not likely in a mill where a lack of watchfulness prevails. The same carelessness that fails to know that "all is well" will always fail to discover that all is not well early enough to make the discovery of any practical value. In 99 cases out of 100 the discovery of fire in a mill is not early, at least not early enough to make small means of extinction valuable. Let us have sprinkling apparatuses or anything else that will subdue fire, but let us place as little dependence as possible upon them. Prevention is possible. Extinction is of only doubtful value, so far as the mill itself is concerned, and may be viewed generally in the light of saving surrounding property.

I PREFER the reliable watchman, well paid to encourage watchfulness, and provided with buckets or bottles of water everywhere throughout the mill, to the most expensive sprinkler that was ever put in a mill. The careful operatives through the day and the wide-awake watchman through the night are the only safeguards a mill-owner can rely upon safely. Add sprinklers, and hose, and fire-brigades to these, if it seems desirable, but have these careful men about the mill, and there will be small use for hose, sprinklers and brigades. The atom of prevention makes useless the whole mountain of half-way cure.

COTEMPORARY COMMENT.

Very little business was transacted by the National Association at the recent convention. There was little to transact, as the working committees having charge of several irons which the Association has in the fire, so to speak, are attending to them to the entire satisfaction of the members. * * * The adoption of a new constitution was the most important action of the convention. * * * The rule (on basis of representation) adopted, or rather readopted, for it has long been in force, is not exactly what we would have voted for, but so long as the members are satisfied, after the thorough airing the question of representation has received, further discussion of it would appear to be superfluous. * * * The mill-furnishers' agent did more business than the convention. * * * The Association was strengthened by the addition of many new members at Minneapolis, and it is now, after years of struggling, once more in a prosperous condition, and we hope to see it go steadily forward, as it promises to do under the present management.—*Kansas City "Modern Miller."*

A few weeks ago Prime noted that the rain was soaking into the ground, a most extraordinary occurrence. In his crop letter to-day he announces that the "heat continued, literally drying out the ground."—*Chicago "Daily Business."*

PROSPECT FOR NORTHWESTERN FLOUR.

Says the Minneapolis "Tribune": "There has been a tendency for several years to mix the hard spring wheats of the Northwest with the softer winter wheats, and that plan appears to have been very satisfactory to consumers of the mixed product, who had before mainly used the winter-wheat product alone. In more recent years, and now in a time of shortage in the winter-wheat supply of any particular locality, that locality at once turns to the Northwest for wheat to grind. It does not go to California for it, nor to the north Pacific coast, although efforts are frequently made to introduce such wheat where ours has been sent. The prospect is that there will be a large demand for our 1890 crop. Of course all our wheat that goes to supplement shortage of winter wheat will be made there into flour that, to some extent, will compete with northwestern flour. Such

competition, however, must naturally be limited to the immediate localities of the mills making use of our wheat. It would not be possible for winter-wheat mills to buy northwestern spring wheat, pay the freight on it to their mills, and then pay another freight to the sections that lead in the consumption of flour and successfully compete with northwestern millers. The extra cost of freight they would pay, even to sell without profit, would make a round profit for the millers of the Northwest. It is not probable, therefore, that winter-wheat millers will be as strong competitors in the general markets as for a few years past. The result of this will be very naturally to make a larger demand for northwestern flour and more energetic work for northwestern mills, from the crop of 1890. Of the whole amount of flour supplied by the Northwest, Minneapolis produces a very large share, sometimes reaching above 7,000,000 barrels, as this city's quota did in 1888. The next year the results were different, caused by the damaged crop mentioned. Conditions similar to the years of greatest milling activity exist now. Prosperous milling of the leading crop indicates prosperous business with other kinds of manufacture and trade. It justifies wheat-raisers also in expecting full prices for their crop, for active milling means active demand and resultant prices. It is altogether likely the Minneapolis flour-producing record may be passed in the manufacture from the growing crop."

THE MICHIGAN MILLERS TO MEET.

Following is an announcement sent out by Secretary M. A. Reynolds, of the Michigan State Millers' Association, under date of July 14; "The Michigan State Millers' Association will hold its summer meeting at the Hotel Downey, in the city of Lansing, Tuesday, July the 22d, commencing at 10 o'clock a. m. It is needless to say that the association extends a cordial invitation to every miller in the State to be present. The association has nearly doubled its membership since the annual meeting in January last, but there is room for all and a hearty welcome for each. The Michigan Association has the reputation of being foremost among the State organizations of this country. The railroads in Michigan, for the first time in the history of the association, have

granted a rate of one and one-third fare for the round trip. Tickets can be purchased on 21st and 22d, good to return on the 24th. Our railroad managers say the reason they are or have been reluctant to go to the trouble of issuing special rates for millers' meetings is because nobody attends them. Let this meeting forever remove that objection. A rate of \$1.50 per day has been secured at the Hotel Downey. The order of business and the programme of discussion will be as follows:

- "1. Calling roll of membership and reading report of last meeting. 2. Secretary's report. 3. Reading communications. 4. Credit; its uses and abuses. 5. Millers' Mutual Insurance Companies; are they justified in doing a cash premium business on miscellaneous property? 6. State grain inspection; is it desirable? 7. Shall we adopt a uniform system of Exchange, based on test weight of wheat? 8. A central agency for disposing of all mill products in excess of home requirements; is it desirable? 9. Shall we district the State and pay uniform prices for wheat? 10. Shall the weekly reports of shipments outside the State be continued? 11. Is it desirable and practicable for the association to pool its fuel and sack purchases? 12. Filling vacancies in office and miscellaneous business?"

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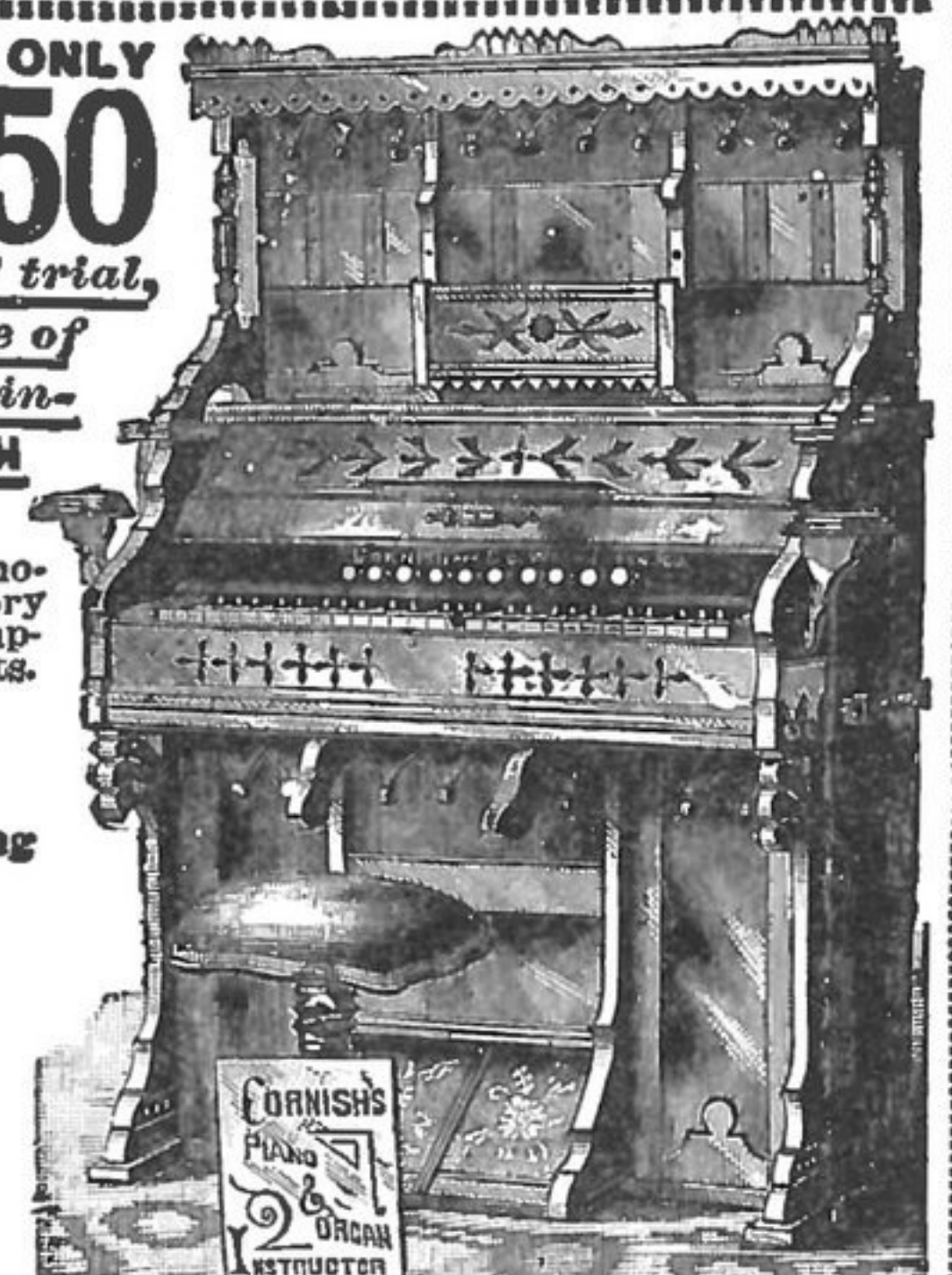
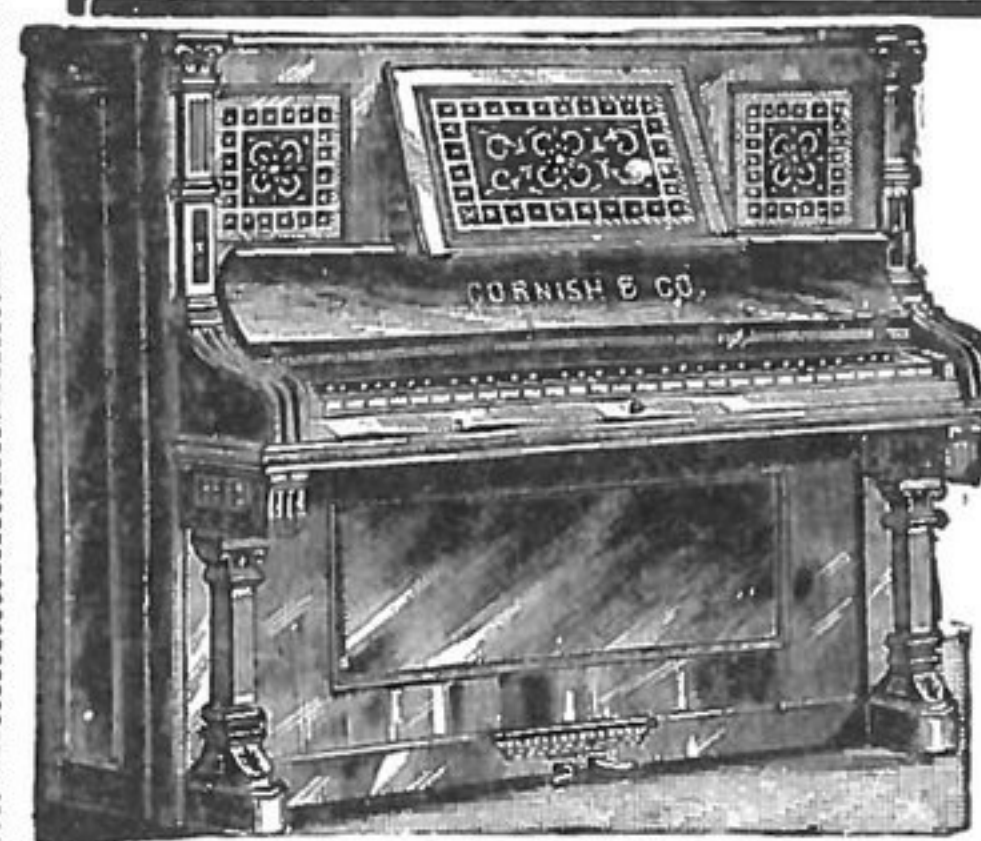
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GENERAL NOTES.

The fastest mile a single man has traveled by various methods of locomotion is to date respectively recorded as follows: Swimming 26.52; walking 6.23; snow shoes 5.39½; rowing 5.01; running 4.12½; tricycle 2.49¾; bicycle 2.29¾; skating 2.12¾; trotting horse 2.08½; running horse 1.39¾; railroad train 40½ seconds; balloon, pneumatic tube and electricity records are yet to be made.

THE KANSAS MILLERS IN COUNCIL.

The regular annual convention of the Kansas State Millers' Association opened in Clark's Hotel, Newton, Kansas, on Wednesday, July 9, with about twenty millers and a number of visitors present. Following is the list of those present: C. H. Searing, Arkansas City; C. P. Rodman, Kingman; Geo. H. Hunter, Wellington; C. B. Hoffman, Enterprise; B. Warkentin, Newton; S. B. DeLano, Fulton; A. F. Brulin, McPherson; H. Imboden, Wichita; A. J. Campbell, Herington; T. J. Blakey, Pleasanton; E. A. Colburn, McPherson; W. H. Shart, Edgerton; E. J. Sweet, Florence; W. H. Barkemayer, Sedgwick; J. W. Krehbiel, Moundridge; H. Emerson, Burrton; Mr. Kinney, Hutchinson. Among the visitors was secretary Barry of the Millers' National Association. The milling journal of Enterprise, Kansas, was represented by W. F. Hopkins.

The session ended on Thursday. Technical matters were not treated, the chief subject of discussion being the rate of transportation charged by railroad lines between Kansas and Texas, the millers feeling that the rate is excessive and unequal, and that it closes in a measure the southern market against Kansas flour. They say that they can not ship to Texas and at the same time pay current rates for grain, and that a lower and permanent freight rate would increase the market price of wheat. The Interstate Commission is now sitting at Washington hearing the carriers and shippers upon this question, and the millers think a revision of the freight schedule will result. The association endorsed the Butterworth anti-option bill, and adopted the following preamble and resolution:

Whereas, The Kauffman Milling Company of St. Louis, Missouri, has filed a complaint before the Interstate Commerce Commission, alleging unjust discrimination by the railroad companies in rates between wheat and flour to Texas points, and *Whereas*, The said roads frequently grant special rates on wheat and corn for short periods of time, allowing the wheat and corn to be taken from the milling districts of Kansas, which does not result in any good to the producer nor consumer, but destroys the milling interests of Kansas, therefore be it *Resolved*, That we, the Kansas Millers' State Association in convention assembled, demand that the Interstate Commerce Commission establish rates the same on wheat and the products of wheat, and a similar rate on corn and the products of corn, and that said rates be made permanent and continuous, as the frequent changing and granting of special rates for short periods of time result in demoralizing trade and prices on food products.

The convention elected the following officers of the association for the ensuing year: President—B. Warkentin; first vice-president—C. R. Underwood; second vice-president—C. H. Searing; secretary—W. F. Hopkins; treasurer—Geo. H. Hunter.

Commenting on the question of railroad discriminations, the Newton, Kansas, "Daily Republican" says: "The millers of Missouri are working with those of Kansas to have the Texas flour market opened to competition. Their complaint

is that on shipments of flour or meal into Texas the freight charge is five cents in excess of the charge made for the transportation of wheat and corn. As a matter of course the Texas miller can buy Kansas wheat, ship it to his mill, convert it into flour and then outsell the Kansas miller. Our manufacturers, it will be seen, can compete in the Texas market only with flour made from grain purchased at an under rate. Such a state of affairs is at variance with a provision of the Interstate Commerce Act, which says that a lower rate shall not be given to a raw material than is placed on the manufactured article. The millers aver besides that the freight rates are otherwise unjust. They had the Interstate Commerce Commission inquire into the matter in February last, and after hearing the case of both the shipper and the carrier, this blunt report was made to the Senate:

"The same grain rates are made from a large group of Kansas points to a large group of Texas points. These groups cover the larger part of the Kansas grain-growing district and a district hundreds of miles in extent in Texas. The rate is 46 cents per hundred on corn and wheat, and 51 cents on flour and meal for distances as short as 250 miles, and the same for distances as long as 769. This is unreasonably high for the longer distances and grossly excessive and exorbitant for the shorter. These charges should be reduced and made more reasonable of themselves and in their relations to each other."

"It is further charged by the millers that the discrimination arose from the influence of stockholders in railroads who had conceived the idea of building mills in Texas and sustaining them against the natural grain-growing advantages of Kansas through the influence of their corporations. The situation complained of puts money in the pocket of the Texas miller alone, the consumer being obliged to pay for flour as much as it costs elsewhere. It is to this condition of affairs that the decline of the milling industry of Kansas is attributed. Surely something has seriously injured this once great industry. At the present time, upon complaint of a St. Louis milling company, the Interstate Commission is sitting at Washington, and the railroads are trying to show cause why the rates should not be readjusted. But the Kansas and Missouri millers are also represented there, and they are determined to force to a satisfactory issue the case they have taken up. That accomplished, the people will look to see the revival of the milling industry of Kansas."

COTEMPORARY COMMENT.

Some one kindly disposed toward millers published a brief history of the National Association and distributed it about the convention for the information of all. The ex-organ had a fit.—*Chicago "American Miller."*

Mr. Barry has learned by this time that his position and salary are prominent enough to inspire others with a desire to get both. There were two or three little side caucuses held with a view to putting some one else in his place. So far as we know, no special complaint was found with his work; the salary was the objective point. Princes are ungrateful; at least some of the merchant miller princes; and it is hardly right to make a man earn his salary and then fight for his place.—*Chicago "American Miller."*

The annual jamboree, generally called the Millers' National Association, is over. It was the same old song and dance that we have had for years past, only it's a little grayer than it used to be. There are a few more flies on it, a few more worms burrowing in it, and the old ones that have been there from time immemorial were there again. The business that was transacted was simply a repetition of what we had a year ago, two years ago, three years ago, four years ago, and so on. The only difference that anybody could see was the tariff on jute, which has distinguished the secretary and a few contributors to the association fund as much more impudent than judicious workers in any cause. The constitution which was adopted by a rising vote of less than 25 is just such a milk-and-water document as the old clique wanted to perpetuate—the one-man or committee power. It insures a continuance of the association farce until such time as the world at large becomes acquainted with its insignificance. When that time comes, it will be too dead to skin.—*St. Louis "Miller."*

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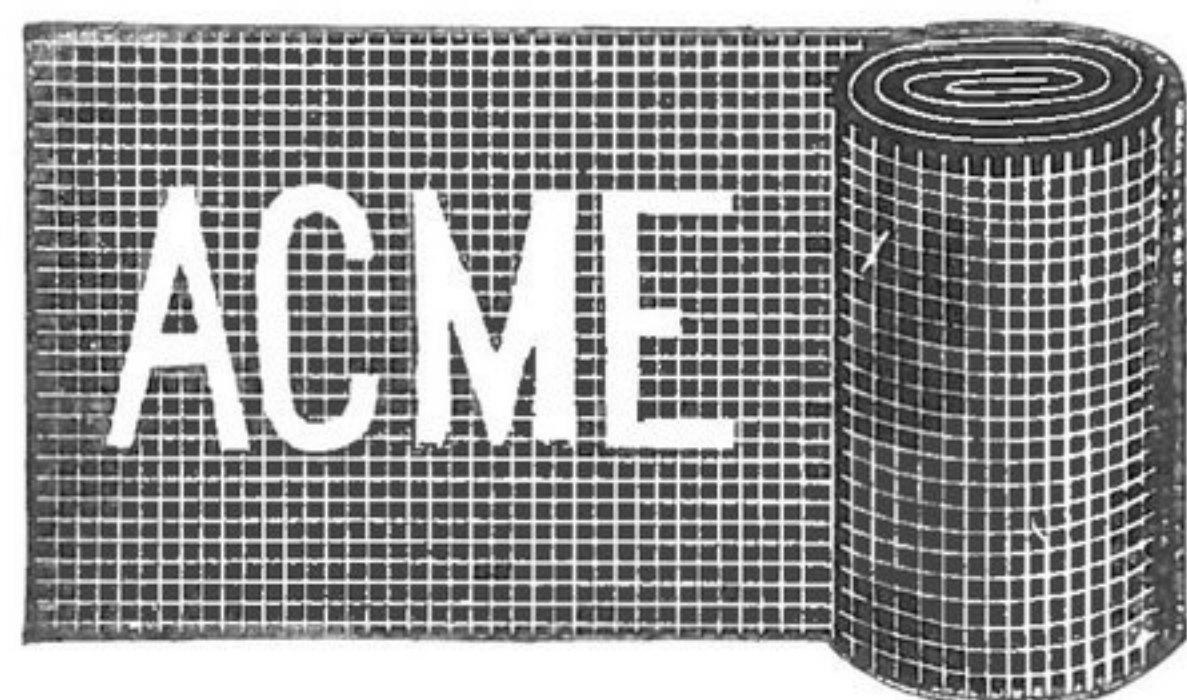
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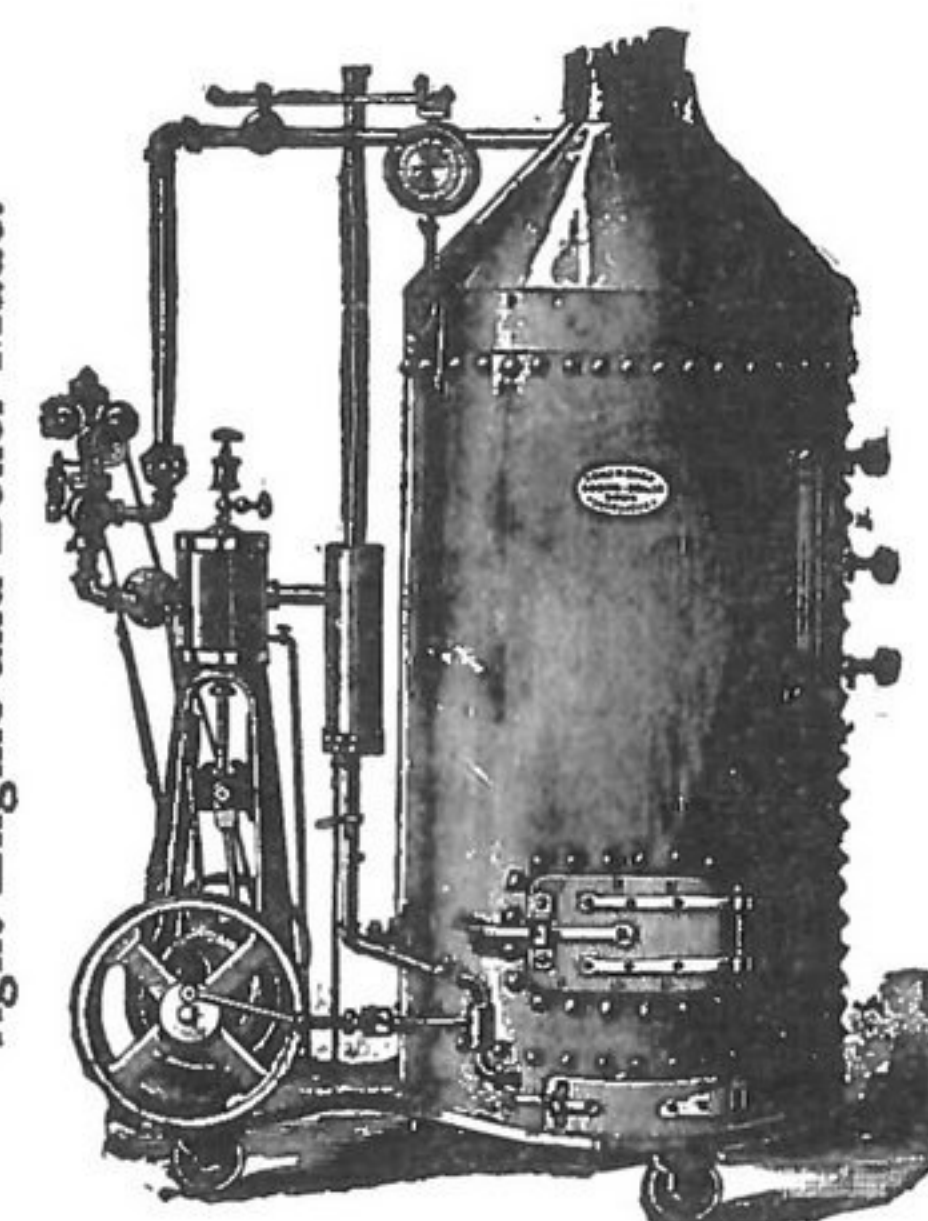
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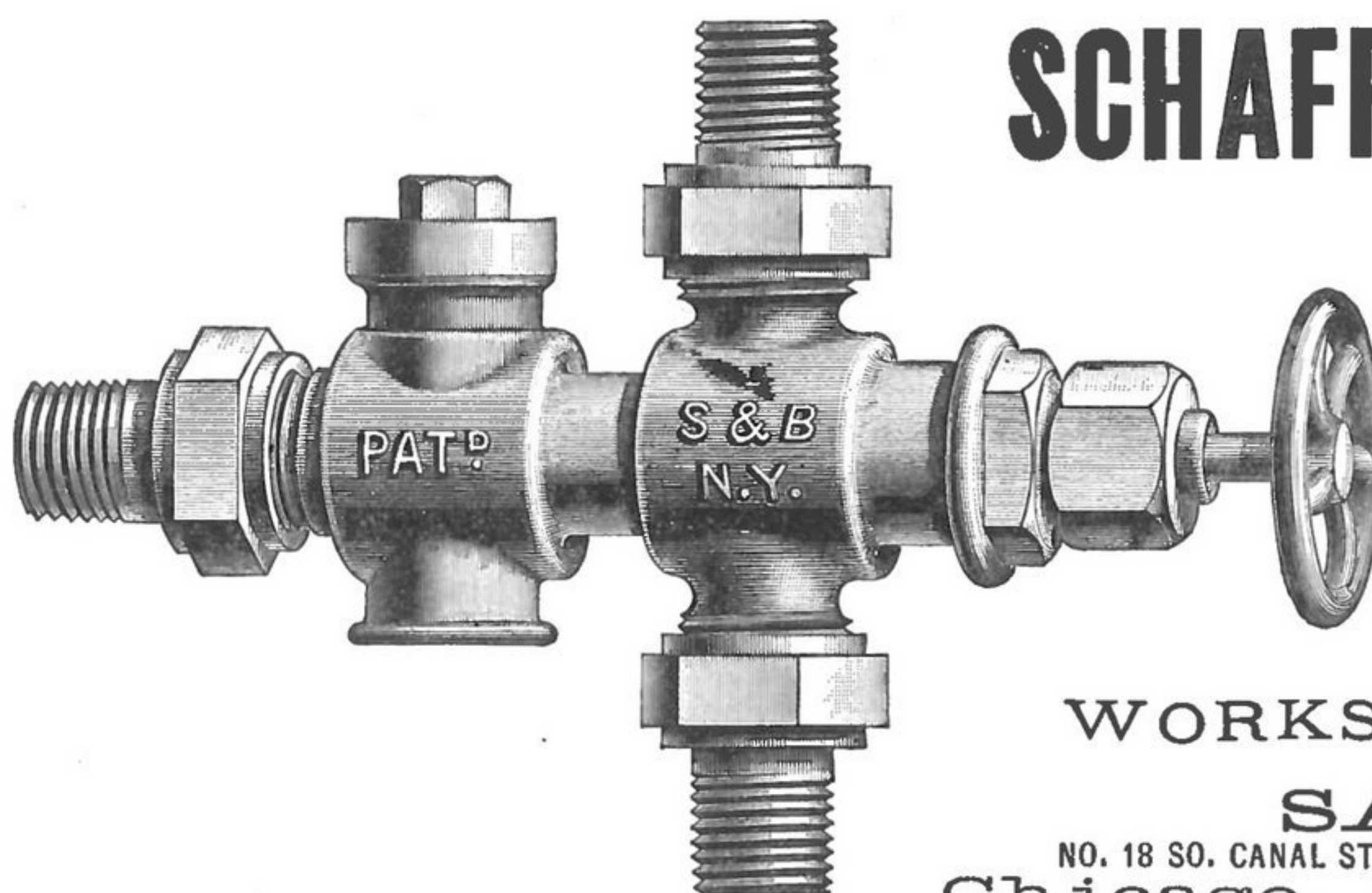


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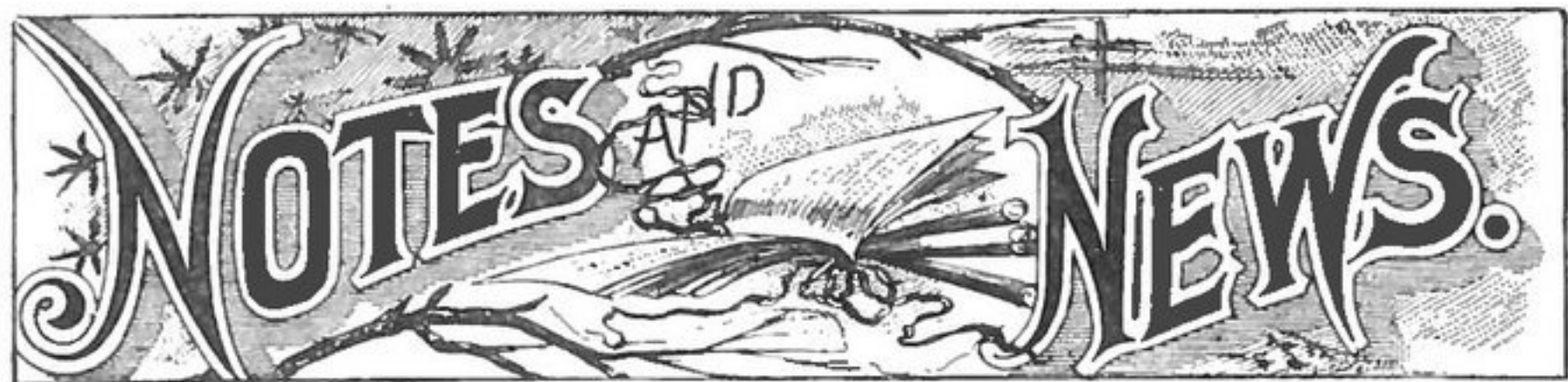
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NATIONAL PULLEY COVERING CO., BALTIMORE, MD.



Scott & Powell, flour-mill, Bryan, O., quit.
 Dickes & Lowe, feed-mill, Aurora, Ill., quit.
 J. Stover, Manassas, Va., builds a roller mill.
 Kirby & Co., Byhalia, Miss., build a grist-mill.
 H. C. Best's flour-mill, New Florence, Pa., burned.
 J. A. Kennedy, Thomasville, N. C., refits his two flour-mills.
 M. V. French, Woodstock, Va., builds a 50-barrel roller mill.
 H. M. Spalding's elevator, Denton, Tex., burned; loss \$10,000.
 C. B. Wilson, flour-mill, Sykesville, Ky., will remodel his plant to rolls.
 Boart's flour-mill, Kitanning, Pa., burned; loss \$2,000; insurance partial.
 The Diamond Mill Co., Crawfordville, Ind., are succeeded by M. Keen & Son.
 X. Sohler & Co., flour-mill, Caledonia, N. D., are succeeded by Weist & Ohms.
 J. A. Nicodemus, Boonsboro, Md., will build a flour-mill and wants machinery.
 Van Brunt & Godfrey's elevator, Deers, Ill., burned; loss \$2,000; insurance \$500.
 L. J. Morse, flouring-mill, Vicksburg, Mich., is succeeded by the Vicksburg Milling Co.
 D. F. Duncan & Son, Hodgenville, Ky., will build a grist-mill; machinery is wanted.
 D. A. Brooks, jr., & Co., Sturgis, Ky., will increase the capacity of their flouring-mill.
 W. J. Myers & Bro., Princeton, Ky., will increase the capacity of their flour-mill at Troy, Tenn.
 Mrs. J. A. Richards, Atlanta, Ga., has bought the Kennesaw Mill Co.'s flour-mills at Marietta, Ga., for \$28,000.
 The Eureka Flat wheat fields in Washington, aggregating 35,000 acres, promise to yield 35 bushels an acre, or over 1,000,000 bushels of prime wheat.
 According to Beerbohm, the statistical position of wheat on July 1, with regard to the visible stocks in various centers, compares with previous years as follows:

	1890. Qrs.	1889. Qrs.	1888. Qrs.
Afloat for Europe.....	2,433,000	1,672,000	2,225,000
Stocks in U. K.....	1,950,000	2,015,000	2,050,000
Balance home-grown U. K...	1,295,000	1,575,000	1,215,000
Visible supply in U. S.....	3,325,000	2,548,000	4,071,000
Stocks in French ports.....	200,000	950,000	280,000
Stocks in Paris.....	75,000	175,000	135,000
Stocks in Odessa.....	250,000	500,000	400,000
St'ks in Berlin, Danzig & Stettin	110,000	350,000	300,000
Total.....	9,638,000	9,785,000	10,676,000
Equal bushels.....	77,104,000	78,280,000	85,408,000

The above items give practically the same total as last year, but nearly 8,000,000 bushels below that in 1888. If the subject could be pursued further, and the comparative invisible stocks in Russia, France, Germany, Hungary and Roumania could be approximately ascertained, it would be of considerable interest. We have enough evidence to show that these invisible stocks must be fully 80,000,000 bushels less than they were on July 1, last year, while on the other hand, by the most liberal assumption, the United States, Argentine Republic, Australasia and Chili can not be expected to hold more than 40,000,000 to 48,000,000 bushels in excess of July 1, last year. These facts necessarily render the market more susceptible of being influenced by the weather, so that it can only be repeated that the principal controlling influence must, for some time, continue to be the atmospheric conditions.

Reports of the past week from 350 points in Minnesota and North Dakota, covering a district that last year shipped 62,000,000 bushels of

wheat, justify expectations of a crop of 100,000,000 bushels, and some estimates are as high as 115,000,000 bushels. There is little or no complaint from rust thus far from either Minnesota or North Dakota. In South Dakota it is different; "spotted" is the word which best indicates the appearance and condition of crops in South Dakota. There are all kinds of fields, early and late sown, broadcast and drill-sown, high and sandy fields, low and marshy ones. The general condition of wheat well put in is excellent. The reports indicate a short crop in some localities and a fair or large yield in others. The fact that men who declared their crops ruined on July 10 said they were looking finely on July 12 illustrates both the panicky tendency of the country and the critical situation of crops at this season. Wheat is heading out finely and stands high and thick. The heads are large and all are filling out well. Considerable rust and blight have been reported, but the acreage so affected is infinitesimal when compared with the entire crop. There is every indication for an excellent crop, though it will not be as abundant as many have expected.

A European report, dated July 4, summarized crop conditions as follows: A week of unsettled weather has been experienced, and heavy rain has fallen in most parts of Great Britain, which, although probably not doing much actual damage, has caused some uneasiness among farmers, dry, warm weather being now urgently needed. In the most forward districts wheat has passed the blooming period under excellent auspices, but in the later districts the plant has gone into ear fully a week later than last year. Barley generally is spoken of as looking better than wheat, while beans and peas have a very flattering appearance. Altogether, it may be said that we are now in the most critical month for the crops, which depend almost entirely upon the weather this month for their final out-turn. In France the heavy rains this week have beaten down the crops in parts of the center and north, and one report says that about 2,000,000 quarters must be taken off the promise of a fortnight ago. A favorable change would probably soon dispel present forebodings. In Germany it is not thought that much injury has so far been done, but it is evident that a change for the better in the weather is urgently needed, which is also the case in Belgium and Holland. Italian official reports speak very favorably of the crop outlook in that country. In Hungary a crop equal to that of 1888 is anticipated, if the weather favors harvesting; in that year 17,200,000 quarters were harvested, while last year the yield was only 11,482,000 quarters. In Bulgaria and Roumania, according to a Vienna correspondent, the harvest promises to be above an average, which is difficult to believe when the unfavorable weather of the past month is borne in mind. In the south of Russia, according to the latest advices, there were alarming reports about the deteriorated winter-wheat crop prospects, which are confirmed by the American Consul at Odessa, who says, under date of June 25, that the crops are not at all likely to turn out so well as the official reports indicate. In India, according to the final official reports, the wheat crop proves to be rather below 30,000,000 quarters against 30,384,570 quarters last year, and 33,360,000 in 1888.

A NEW METHOD OF TREATING DISEASE.

HOSPITAL REMEDIES.

What are they? There is a new departure in the treatment of disease. It consists in the collection of the specifics used by noted specialists of Europe and America, and bringing them within the reach of all. For instance the treatment pursued by special physicians who treat indigestion, stomach and liver troubles only, was obtained and prepared. The treatment of other physicians, celebrated for curing catarrh was procured, and so on till these incomparable cures now include disease of the lungs, kidneys, female weakness, rheumatism and nervous debility.

This new method of "one remedy for one disease" must appeal to the common sense of all sufferers, many of whom have experienced the ill effects, and thoroughly realize the absurdity of the claims of Patent Medicines which are guaranteed to cure every ill out of a single bottle, and the use of which, as statistics prove, has ruined more stomachs than alcohol. A circular describing these new remedies is sent free on receipt of stamp to pay postage by Hospital Remedy Company, Toronto, Canada, sole proprietors.



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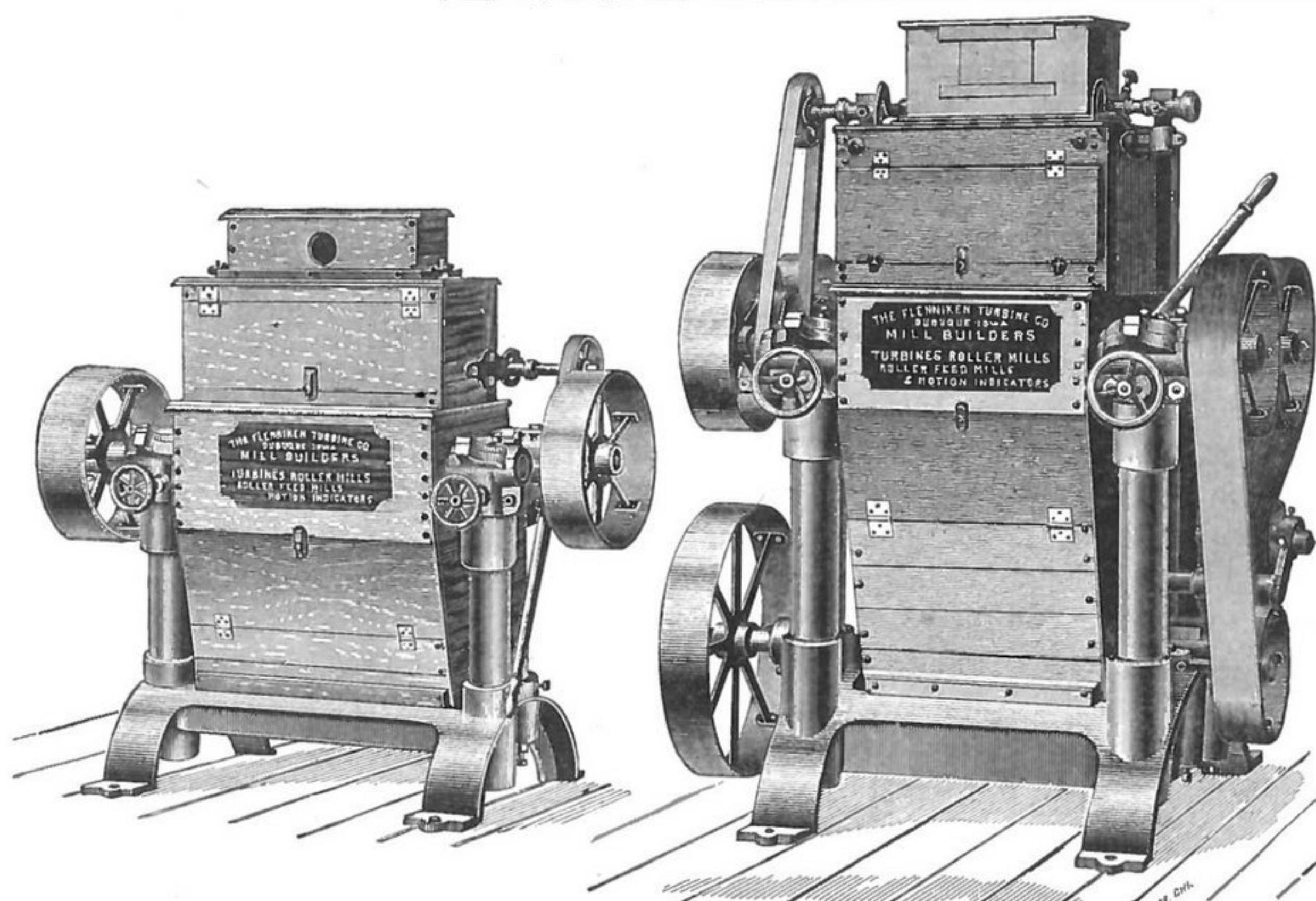
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A Moses has Come to Deliver You from Egypt. Cease Trying to Make Bricks without Straw. The Red Sea of Expense Has Been Divided.

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Having consummated a bargain with **MR. O. C. RITTER**, the author and patentee of **One Reduction**, which gives us the *exclusive right* to construct mills under his patents, our patrons in the future will receive a license from Mr. Ritter.

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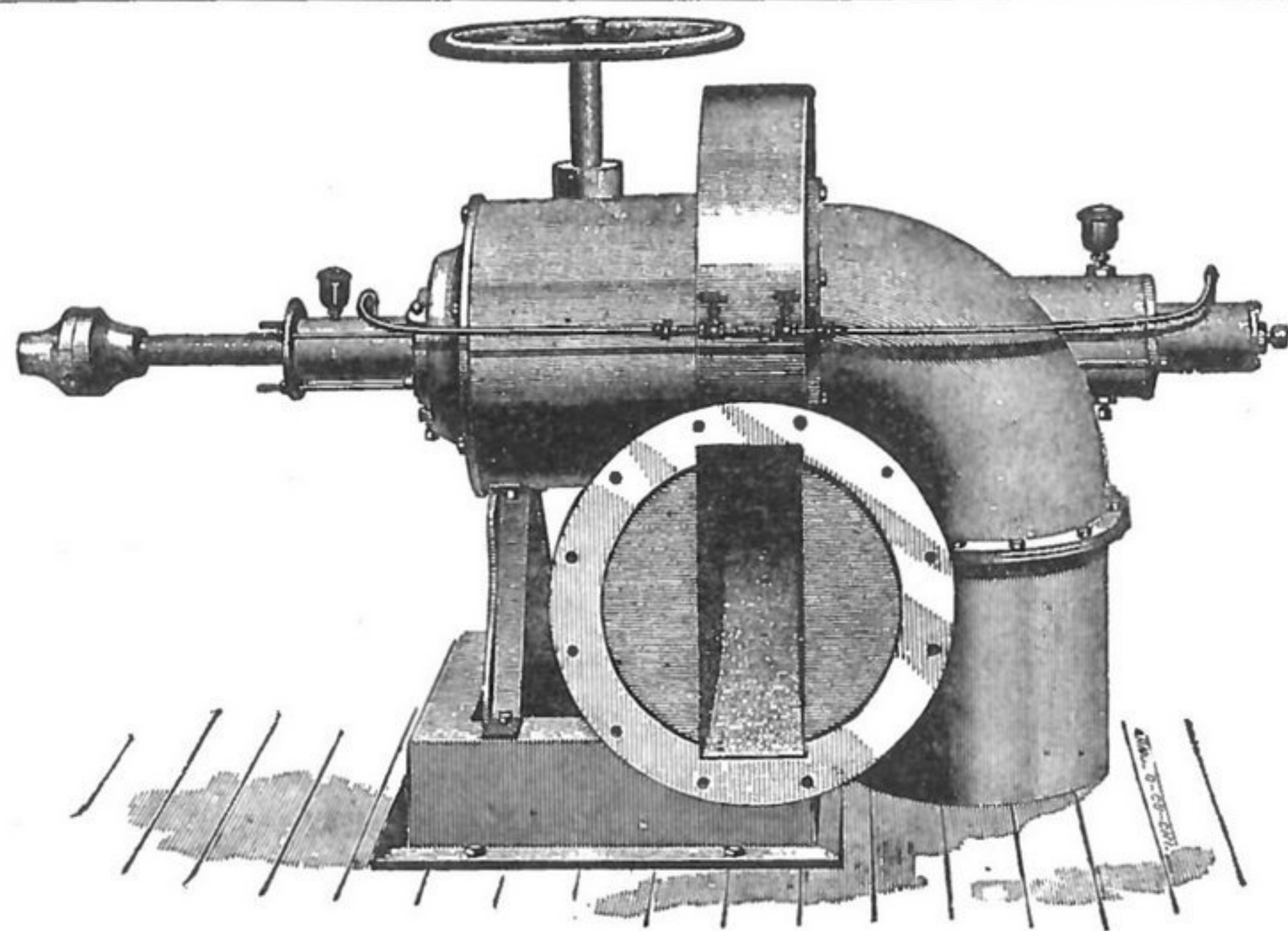
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DUBUQUE, - IOWA.

EUROPEAN ECHOES.

DURING the past week great damage was done by storms to the grain crops in northern Italy and in Austria. In Italy the valley of the Adige was inundated. In Austria the damage was serious in the region of Leinz and Gastein, and between Spital and Oberdrauberg.

SAYS the London "Miller": It appears very probable that the recent general meeting of the Association of Hungarian Millers will result in a radical alteration in the manufacture and sale of flour by Hungarian merchant mills, and that instead of 12 or 13 grades we shall see all the mills restricting their production to 8 grades of flour and one grade of feeding stuff. Moreover, the fancy titles under which Hungarian flour is often sold in this and other European countries would disappear and be replaced by the bare grade number.

SAYS the London "Miller" of June 30: The ending of June has been mainly favorable to English cereal and root crop prospects, while heavy showers have washed out much of the goodness in the grass crops. It is not often that hay has been made without wetting in the southern and mid-land counties this season. Perhaps, as compensation, the later crops of the meadows and clover fields will have both weight of yield and a good time for gathering. Just now the outlook does not promise this, as the heavy downpour of Saturday, electrical and tropical, would have spoiled much grass, and gives warning that the season is not settled. Last night the temperature was also very low for the mid-summer season, and the changes between day and night are such as to threaten mildew to the white wheat fields. Peas, potatoes, mangolds, beans, and forage crops seem to prosper under the alternations. Such as is the season, it remains fairly promising, and the flowering of wheat indicates harvest as due in a month to six week's time. Many fields are a fortnight earlier than others, and may well be matured enough for cutting on Monday the 28th of July. This fact imposes caution in the markets, and, while buying in general for current wants, it is restricted to such requirements. Off market stands in the past week foreign wheat has been a little easier to buy.

SAYS the London "British Baker, Confectioner and Purveyor": "It has been said that of making breads there is no end, and the same remark might also be adapted to apply to the number of new methods patented for the manufacture of digestive breads. Some are good, some are bad and some indifferent. The latest aspirant to public favor is the wheat-meal bread manufactured by Hugh Fairlie, of Dashwood Square, Newton-Stewart. It is one of the very best ever brought under our notice. It has none of the grits or husks in it which are so apt to irritate a delicate stomach, yet which some think are essential to a good loaf of this description; neither is it dry and disagreeable to the palate. It is the very antipodes of all these. We know of no more pleasant-eating bread than the sample of which we partook. It has a crisp crust and a fine crumb. It is most easily digested and is most palatable. Parents will not have to use any persuasion to induce their children to partake of this bread, which will be found most nourishing. The numerous testimonials received from medical men are all enthusiastic in its praises with a most unusual unanimity. Altogether we have pleasure in recommending this bread, the more so as we learn that Mr. Fairlie has resolved to issue licenses for its manufacture on very moderate terms. We have no doubt he will find a large demand for these licenses, and recommend our readers to make very early application, as only one baker in each district can be accommodated, and the bread is sure to become popular."

BREADSTUFF EXPORTS FOR A YEAR.

Breadstuff exportations for the year ended June 30, 1890, show a magnificent total that must surprise those pessimistic prophets who, three or four years ago, were confidently asserting that "by the close of the year 1890 the wheat export

trade of the United States will become extinct." During the year ending June 30 last the exports of wheat grain footed 54,110,942 bushels, worth \$45,031,173, against 45,956,216 bushels, worth \$41,234,759, for the preceding year. The yearly export of wheat flour footed 11,881,163 barrels, worth \$55,369,598, this year, against 9,026,886 barrels, worth \$43,686,058, a year ago. Computing the flour at $4\frac{1}{2}$ bushels of wheat, the grand total this year is 107,576,176 bushels, and the total value of the wheat and flour exports is \$100,400,771, against a total of 86,577,203 bushels, worth \$85,020,817, for the preceding year. The total breadstuff export value for this year is \$150,690,033, against \$120,211,185 for the preceding year.

The minor lines showed the following totals for this year and last: Barley 1,394,464 bushels, worth \$749,455, against 1,435,091 bushels, worth \$850,795; corn 100,905,494 bushels, worth \$42,205,024, against 69,215,104 bushels, worth \$32,803,065; corn-meal 357,028 barrels, worth \$888,501, against 309,549 barrels, worth \$864,248; oats 13,248,516 bushels, worth \$4,382,628, against 612,684 bushels, worth \$241,048; oatmeal 25,531,960 pounds, worth \$783,854, against 10,183,762 pounds, worth \$272,307; rye 2,257,356 bushels, worth \$1,279,800, against 287,245 bushels, worth \$158,905. The increase was maintained during June, and the new fiscal year opens with a favorable prospect for a large foreign demand during the next twelve months.

Besides these large totals of breadstuffs, the total of beef, hog and dairy products, produced mainly by feeding cereals, amounted to \$63,222,651 for the first six months of 1890, against \$53,377,459 for the first half of 1889. At the same rate the total for the last fiscal year was probably \$126,000,000. Adding this to the total of breadstuff exports, the grain sent out of the United States during the last fiscal year amounted in value to over \$276,000,000. The importance of these figures is more apparent when the reader recalls the fact that European governments are generally excluding American food products for various reasons, butter because it is said to be oleomargarine, lard because it is said to be adulterated, pork because it is said to be full of trichina, cattle because they are said to be lump-jawed and dangerous from other alleged diseases, cheese because it is said to be "filled" or bogus and bad, and so on through the list. Besides all this, France, Spain and other countries are putting prohibitive duties on breadstuffs. Were there no European barriers raised against our products that are not raised against the products of other competing countries, our exportations in these lines would be doubled. As it is, the inexorable law of demand that outruns supply in Europe, with the intrinsic excellence of the American products, notwithstanding the false assertions made against them in Europe, makes a foreign market for our products that is important, and that promises to grow larger rather than smaller in the near future.

"Bradstreet's" figures out that 71,000,000 bushels of wheat were on hand in the United States at the beginning of this month (from the crop of last year), and then intimates a disbelief in the showing. It may well be asked what is the use of indulging in such alleged computations, which are no better than guesses and some of which are on their face bad ones.—*Chicago "Tribune."*

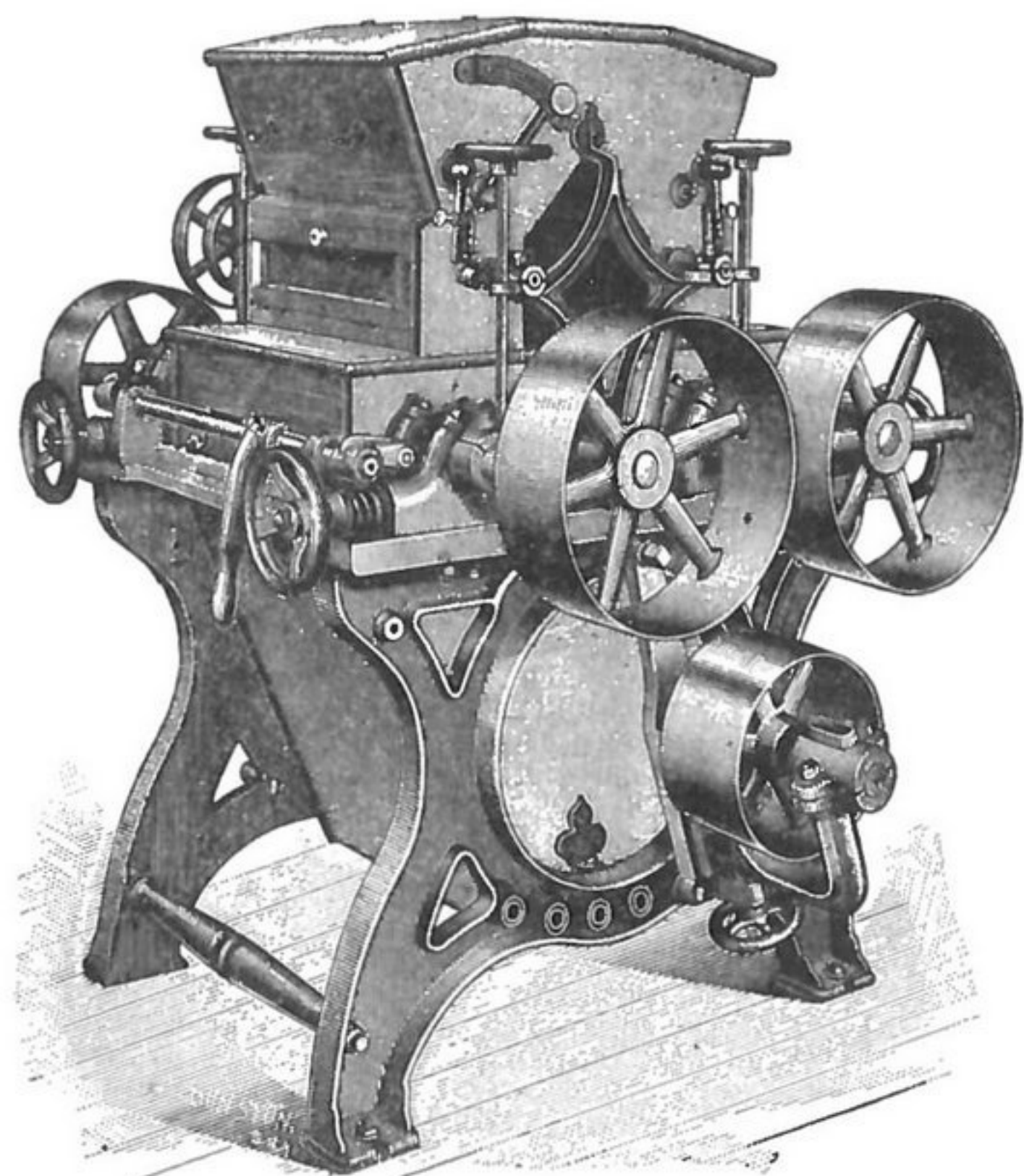
CATARRH.

CATARRHAL DEAFNESS—HAY FEVER.
A NEW HOME TREATMENT.

Sufferers are not generally aware that these diseases are contagious, or that they are due to the presence of living parasites in the lining membrane of the nose and eustachian tubes. Microscopic research, however, has proved this to be a fact, and the result of this discovery is that a simple remedy has been formulated whereby catarrh, catarrhal deafness and hay fever are permanently cured in from one to three simple applications made at home by the patient once in two weeks.

N. B.—This treatment is not a snuff or an ointment; both have been discarded by reputable physicians as injurious. A pamphlet explaining this new treatment is sent free on receipt of stamp to pay postage, by A. H. Dixon & Son, 337 and 339 West King street, Toronto, Canada.—*Christian Advocate.*

Sufferers from Catarrhal troubles should carefully read the above.

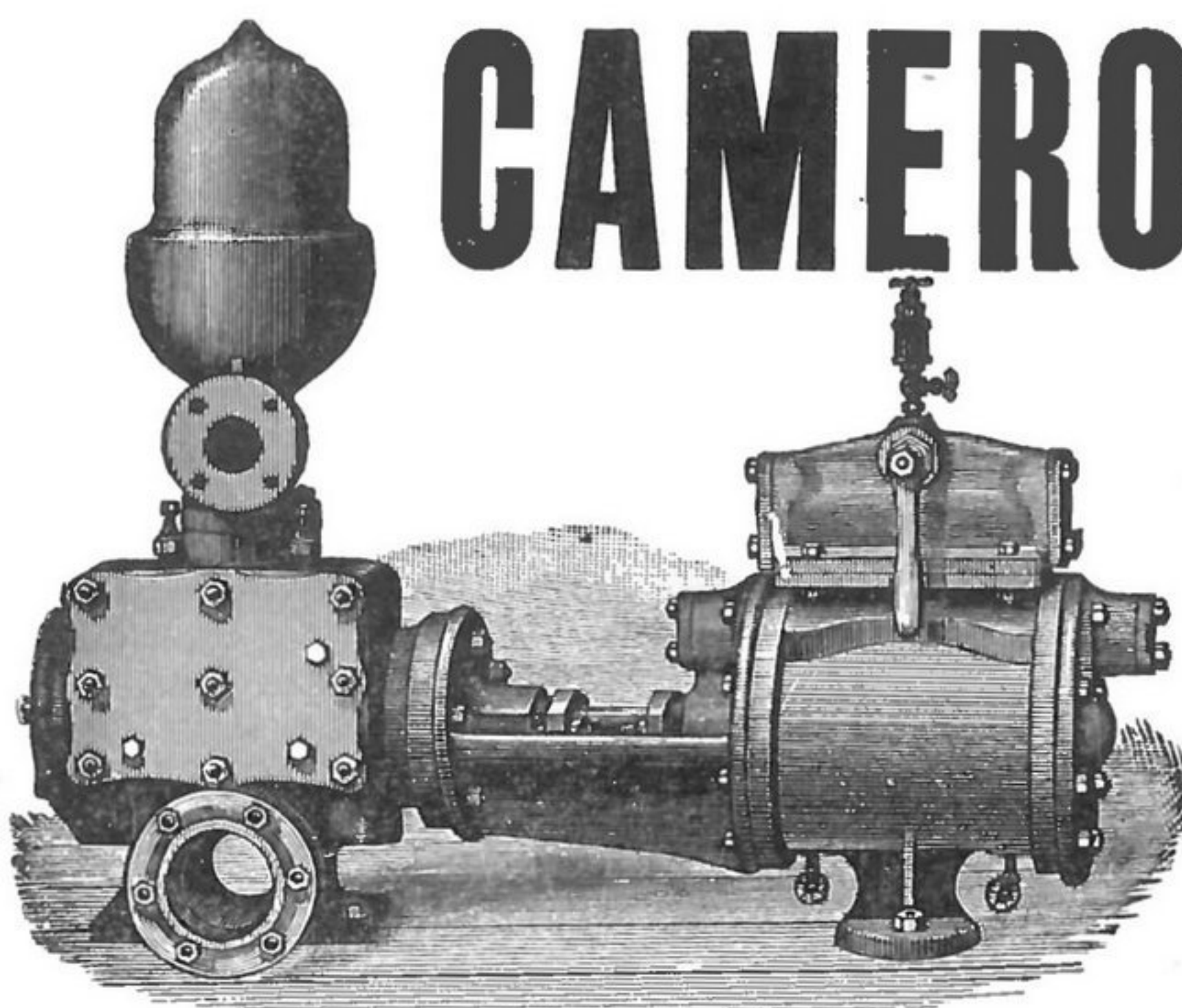


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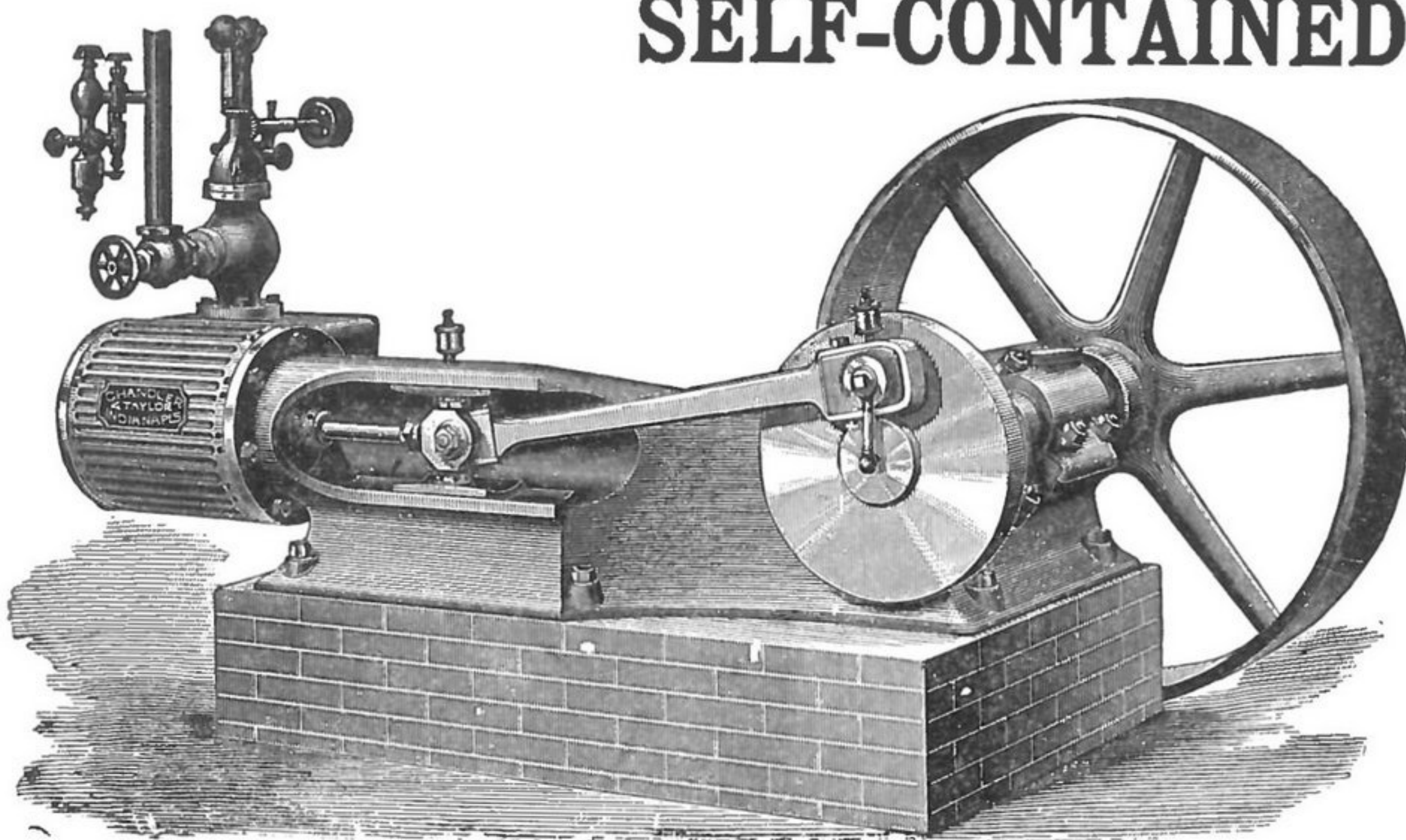
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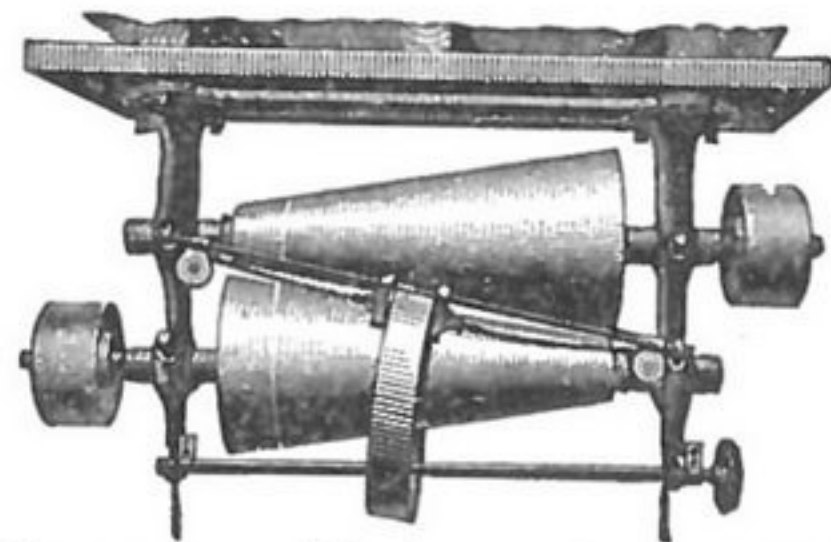
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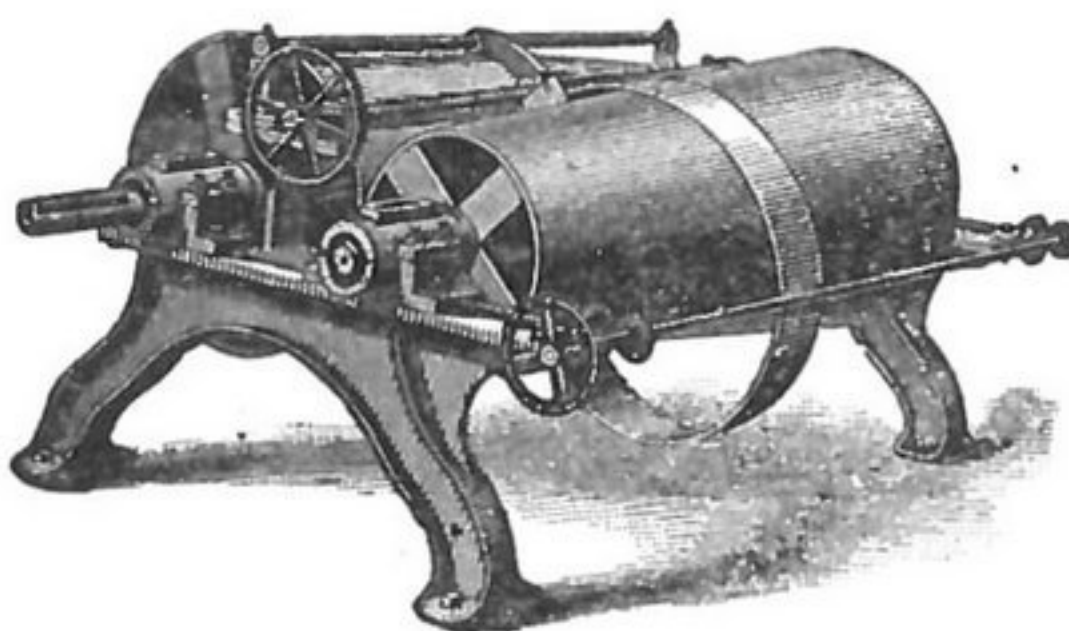
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Machinery a Specialty.

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"PATENTED."



This cut represents a set of hanging cone pulleys. This pattern is intended for that class of machinery that stops and starts at the same speed, and at the same time be able to change the speed more or less while running. These cones are also fitted with a governor where a steady motion is required and the initial power is fluctuating. All sizes made from 1/2 Horse Power to 50 Horse Power. SEND FOR ILLUSTRATED CATALOGUE.



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SHIPPING
BLANKS. SEND FOR
SAMPLE SHEET & PRICES
BARLOW BROS. GRAND RAPIDS, MICH.



OFFICE OF THE MILLING WORLD,
BUFFALO, N. Y., July 19, 1890.

Friday of last week brought lower grain markets on realizing by longs on the government crop report and on improved crop reports generally. In New York July wheat closed at 94½c., with Atlantic port receipts 134,281, exports 216,134, and options 2,688,000 bushels. July corn closed at 43¼c., with receipts 124,850, exports 178,044, and options 1,880,000 bushels. July oats closed at 34¾c., with receipts 57,260, exports 25,947, and options 100,000 bushels. Wheat flour was firm and generally unchanged, with receipts 6,760 sacks and 15,292 barrels, and exports 6,495 sacks and 18,313 barrels. The minor lines were unchanged.

Saturday brought quiet but firm markets on unfavorable cable reports on foreign weather. July wheat closed at 95½c., with receipts 152,713, exports 135,531, and options 1,390,000 bushels. July corn closed at 43½c., with receipts 180,873, exports 119,510, and options 600,000 bushels. July oats closed at 34¾c., with receipts 42,242, exports 38,000, and options 25,000 bushels. Wheat flour ruled quiet and generally unchanged. Receipts were 323 sacks and 19,009 barrels, and exports 20,522 sacks and 13,075 barrels. The minor lines were quiet.

Monday was a day of irregular markets, with wheat a trifle lower and corn and oats higher on weather reports. July wheat closed at 95½c., with receipts 194,046, exports 144,263, and options 3,400,000 bushels. July corn closed at 43½c., with receipts 217,307, exports 61,247, and options 1,760,000 bushels. July oats closed at 35½c., with receipts 64,069, exports 68,977, and options 300,000 bushels. Wheat flour was in better export demand in New York. Receipts were 7,973 sacks and 29,375 barrels, and exports 18,484 sacks and 3,691 barrels. The export demand was at full former prices and at 6d. more than late decline, with 22s. 6d@23s. asked, July and August shipment, for good bakers' extra springs and 29s. 6d@30s. for patent do for the English markets, for which there were free orders Saturday and Monday at 6d@1s. less bid in round lots. The supply of bakers' springs on the spot is growing small and mills were offering only sparingly to arrive, which gives the sellers the advantage still, though the Western millers generally demanded an advance over the last prices paid. The minor lines were quiet and firm. The visible supply in the United States and Canada was as follows:

	1890.	1889.	1888.
	July 12.	July 13.	July 14.
Wheat.....	18,558,921	12,711,165	22,418,268
Corn.....	14,271,292	8,950,606	9,332,091
Oats.....	4,029,840	5,068,713	3,468,325
Rye.....	550,157	806,601	143,477
Barley.....	442,558	377,951	149,365

Tuesday was a day of weak and lower markets, on report of good rains in the West, on free selling by longs, and on fine weather abroad. July wheat closed at 94½c., with receipts 341,139, exports 2,655, and options 5,356,000 bushels. July corn closed at 43½c., with receipts 419,644, exports 83,350, and options 1,920,000 bushels. July oats closed at 36¼c., with receipts 96,152, exports 12,650, and options 200,000 bushels. Rye grain was quiet and easy at the following quotations: Western 57½@59c. delivered; Canada 58@59c.; State 58½@59½c.; car lot on track 54@55c. for ungraded. Malt was steady to firm and in better demand at old prices. Quotations: 85@90c. for city-made Canada, 80@85c. for country do, 75@78c. for six-rowed and 68@70c. for two-rowed asked. Mill-feed was firm and in fair demand, with sales 40 and 60 lbs. at 62½c., with 65c. generally asked for 40, 60 and 80 lbs., and even more in cases, and 75@80c. for

100 lbs. and sharps. Rye was nominally the same as sharps.

Wheat flour was dull and easier to sell, excepting winters. Receipts were 8,713 sacks and 30,488 barrels, and exports 270 sacks and 2,250 barrels. Exporters were out of the market completely.

Rye flour was quiet at \$3.00@3.20. Corn products were in fair export demand at the late advance. Quotations were: Coarse 82@86c.; fine yellow 92@97c.; fine white 97c.@\$1; Southern 95c @ \$1.25 for coarse to bolted; ditto in barrels \$2.40@2.45; Western \$2.40@2.50; yellow and granulated \$2.65@2.75; white \$2.75@2.85; flour \$3.00@3.35; Brandywine \$2.55.

The following shows the amount of wheat and flour, together with the amount of corn on passage to United Kingdom, for ports of call or direct ports for the weeks mentioned:

	1890.	1890.
	July 15.	July 8.
Wheat and flour, qrs....	2,295,000	2,415,000
Corn, qrs.....	818,000	620,000

The following shows the amount of wheat and corn on passage to the Continent for the past week and the previous week:

	1890.	1890.
	July 15.	July 8.
Wheat, qrs.....	703,000	630,000
Corn, qrs.....	263,000	277,000

The imports into the United Kingdom for the past week and the previous week:

	1890.	1890.
	July 15.	July 8.
Wheat, qrs.....	268,000	364,000
Corn, qrs.....	24,300	212,000
Flour bbls.....	130,000	116,000

Wednesday brought lower markets, on fine weather West and Europe. July wheat closed at 94½c., with receipts 64,085, exports 4,198, and options 4,544,000 bushels. All the new wheat received is very fine in quality, grading mostly No. 2. July corn closed at 43½c., with receipts 84,625, exports 232,622, and options 1,680,000 bushels. July oats closed at 37c., with receipts 50,875, exports 14,653, and options 225,000 bushels. Wheat flour was irregular. Old winters were scarce. Receipts included 3,075 sacks and 17,939 barrels, and exports 6,012 sacks and 26,211 barrels. The minor lines were featureless.

Thursday brought no important changes. July wheat closed at 94½c., with receipts 67,600, exports 108,000, spot sales 100,000, and options 2,872,400 bushels. July corn closed at 44c., with receipts 275,000, exports 130,000, spot sales 171,000, and options 712,000 bushels. July oats closed at 38½c., with receipts 50,000, spot sales 162,000, and options 215,000 bushels. Wheat flour was quiet and steady, with receipts 9,000 packages, and sales 18,000 barrels. Sales were made at the following quotations: Low extras \$2.45@3.00; city mills \$4.45@4.65; city mill patents \$4.75@5.25; winter wheat low grades \$2.45@3.00; fair to fancy \$3.15@4.80; patents \$4.40@5.25; Minnesota clear \$3.65@4.50; straights \$3.75@4.85; Minnesota straight patents \$4.25@5.30; rye mixtures \$3.55@4.15; superfine \$2.40@2.85. The minor lines were featureless. The Minneapolis output last week was 99,100 barrels by 15 mills, and this week 17 mills were running, largely increasing the output.

NOTES.

Kansas City, Mo., is wild over a sale of 35,000 bushels of wheat for export.

Washington and Oregon report yields of 30 to 65 bushels of wheat to the acre.

The California wheat crop is said to be 10,000,000 bushels below that of last year.

Robinson's grist-mill, Oxford, Me., burned; loss \$3,500; insurance \$2,500; fire incendiary.

Sarpy's mill, near Papillion, Neb., burned; loss \$9,000; insurance \$4,500; fire mysterious.

It is estimated that 75 per cent. of the new winter wheat will grade No. 2 and average 59 pounds to the bushel.

The Philadelphia, Pa., market has fallen upon a corn famine. None of that grain is to be had in that city at present.

The grain-dealers of Odessa, Russia, appear to have been as much embarrassed by the rise in the paper-rouble exchange as exporters from the far East were by the advance in the price of silver. The export trade of southern Russia is, it is said, being demoralized. The pound sterling has depreciated in a short time about 35 per cent., and it is obvious that the grain exporters of southern Russia must either trade at a ruinous loss or not trade at all. They have consequently held back the surplus accumulations of last year's harvest, trusting to a depreciation of the rouble currency.

A late dispatch from Brailia, Russia, says: Within the last ten days our crop prospects have very considerably improved, owing to the cessation of the continuous daily rains, which had a very depressing effect all round on those interested in the success of the crops from the districts for which the Danube is the great outlet. At one time it looked very much as though the rains were going to ruin the very promising harvest which the state of the crops four weeks ago justified us in expecting. Fortunately a change in the weather from too much rain and overcast skies to bright and hot sunshine has dispelled the heavy forebodings which were recently prevalent. And we are pleased to say that we may consider an abundant harvest now practically assured. In general the surplus production necessary for a large export can be considered guaranteed.

BUFFALO MARKETS.

WHEAT—The market was firm, with limited transactions, closing higher. Several cars of No. 1 hard were sold at 96½@96¾c. 9,500 bushels at 96c; 15,000 bushels c i f, at 95½c; 4,000 No. 1 Northern at 95c. and 25,000 do c. i. f. at 93½c. Winter wheat was quiet; one car of extra No 2 white selling at 91½c. in store. CORN—The market was firm to-day, sales of No. 2 yellow being made at 43@43½c., but it closed at 43½c; No. 2 eorn sold at 42@42½c. and closed at the outside price; No. 3 corn sold at 41¼c in store and 41½c on track, closing at 41¼c. OATS—This grain took a jump to-day, sales being made early at 38½@39c for No. 2 white, but this sort closed at 40@41c; No. 2 mixed closing at 37c in store. RYE—The market is entirely nominal at 53@54c for No. 2. OATMEAL—Akron, \$4.95; Western, \$4.95 per bbl; rolled oats, in cases, 72 lbs, \$3.10. CORNMEAL—Coarse, 75@85c; fine, 80@90c; granulated \$1.50 per cwt. MILL-FEED—City-ground coarse winter, \$12.75@13.00 per ton; fine do. \$12.75@13.00; finished winter middlings, \$14.00@15.00; coarse spring do, \$12.25@12.75.

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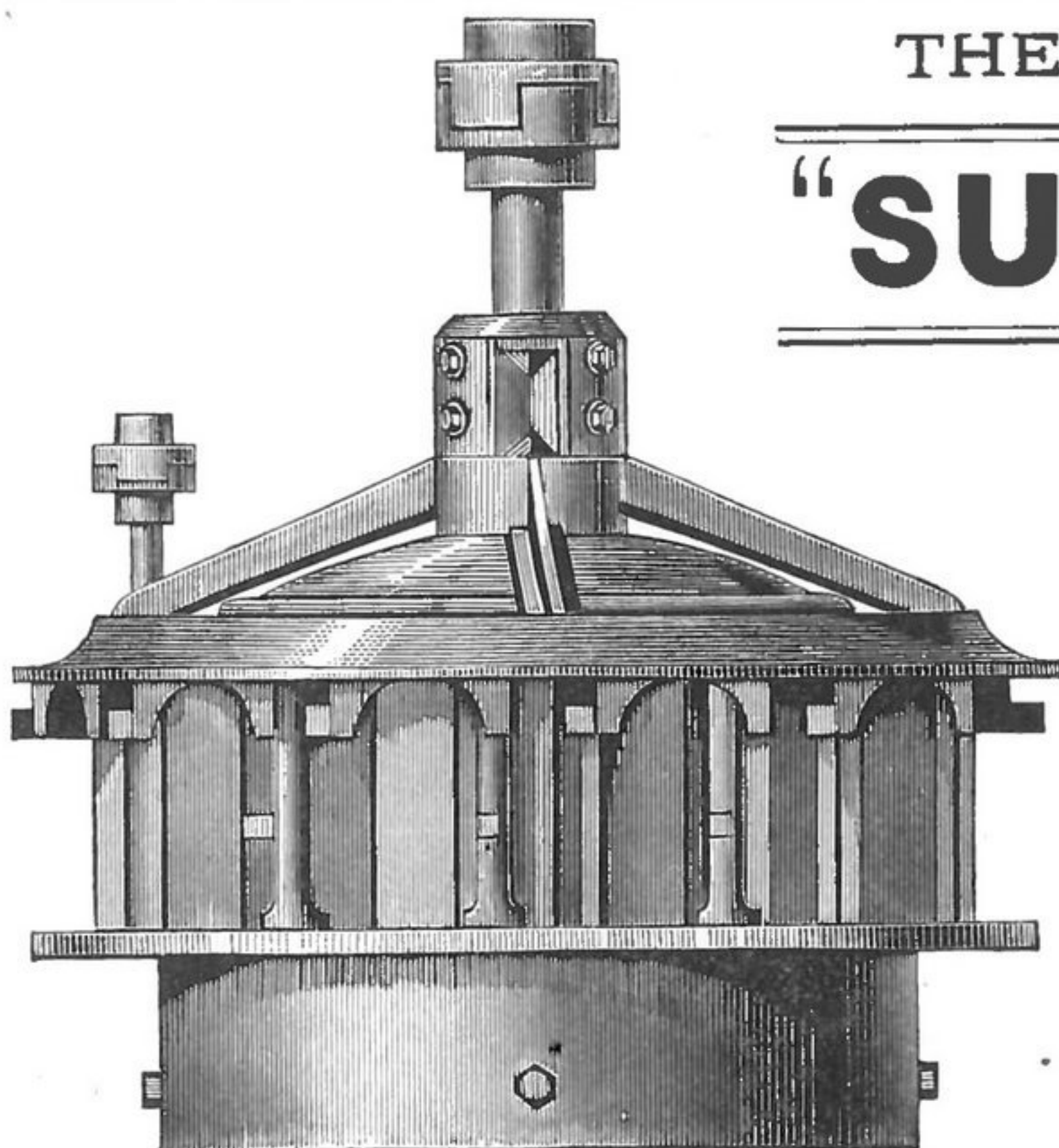
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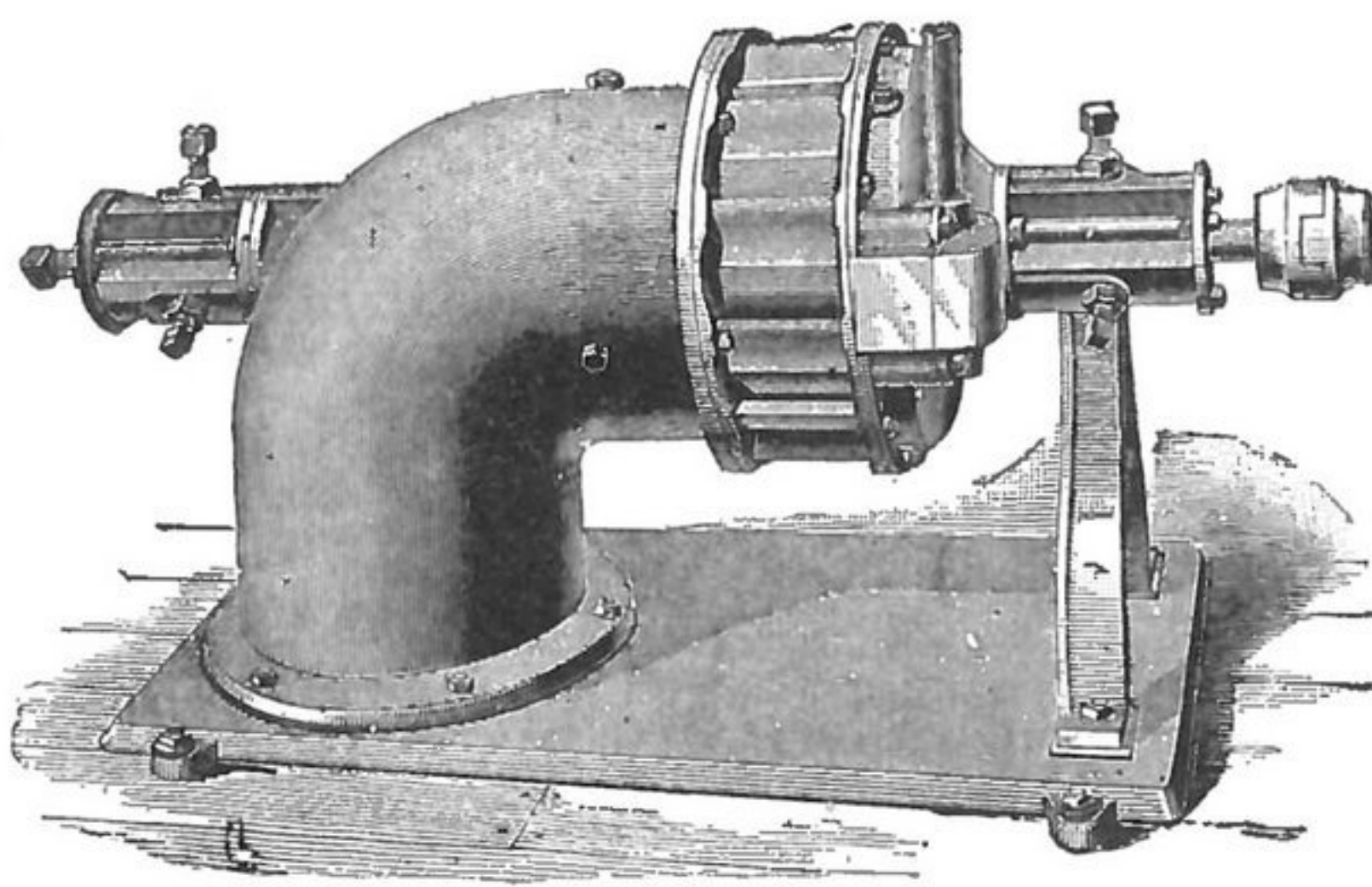
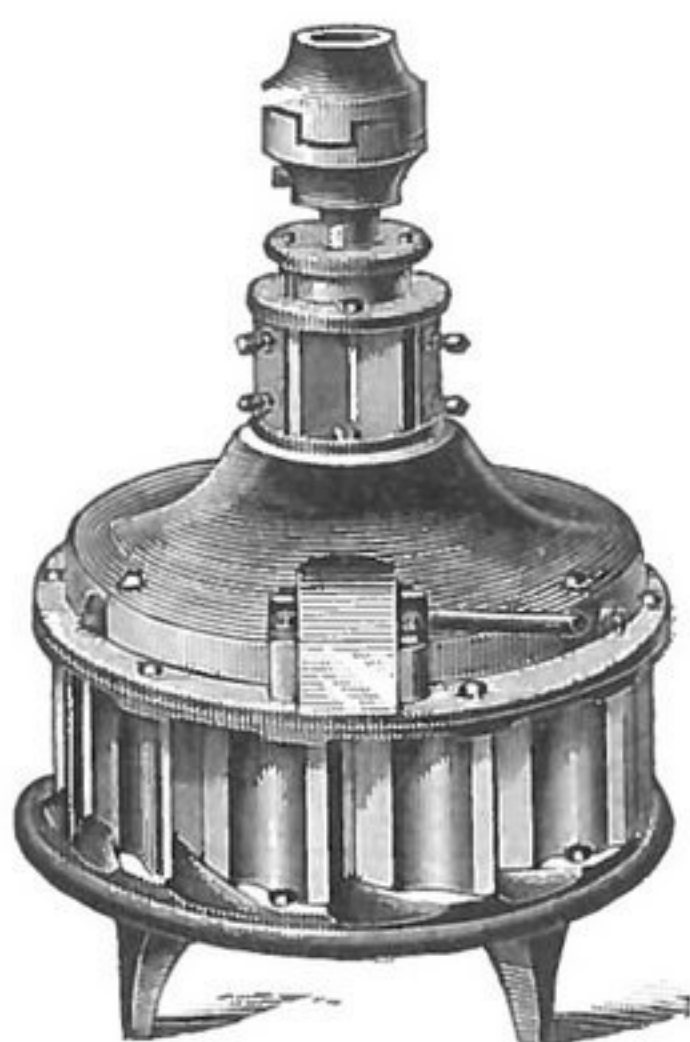
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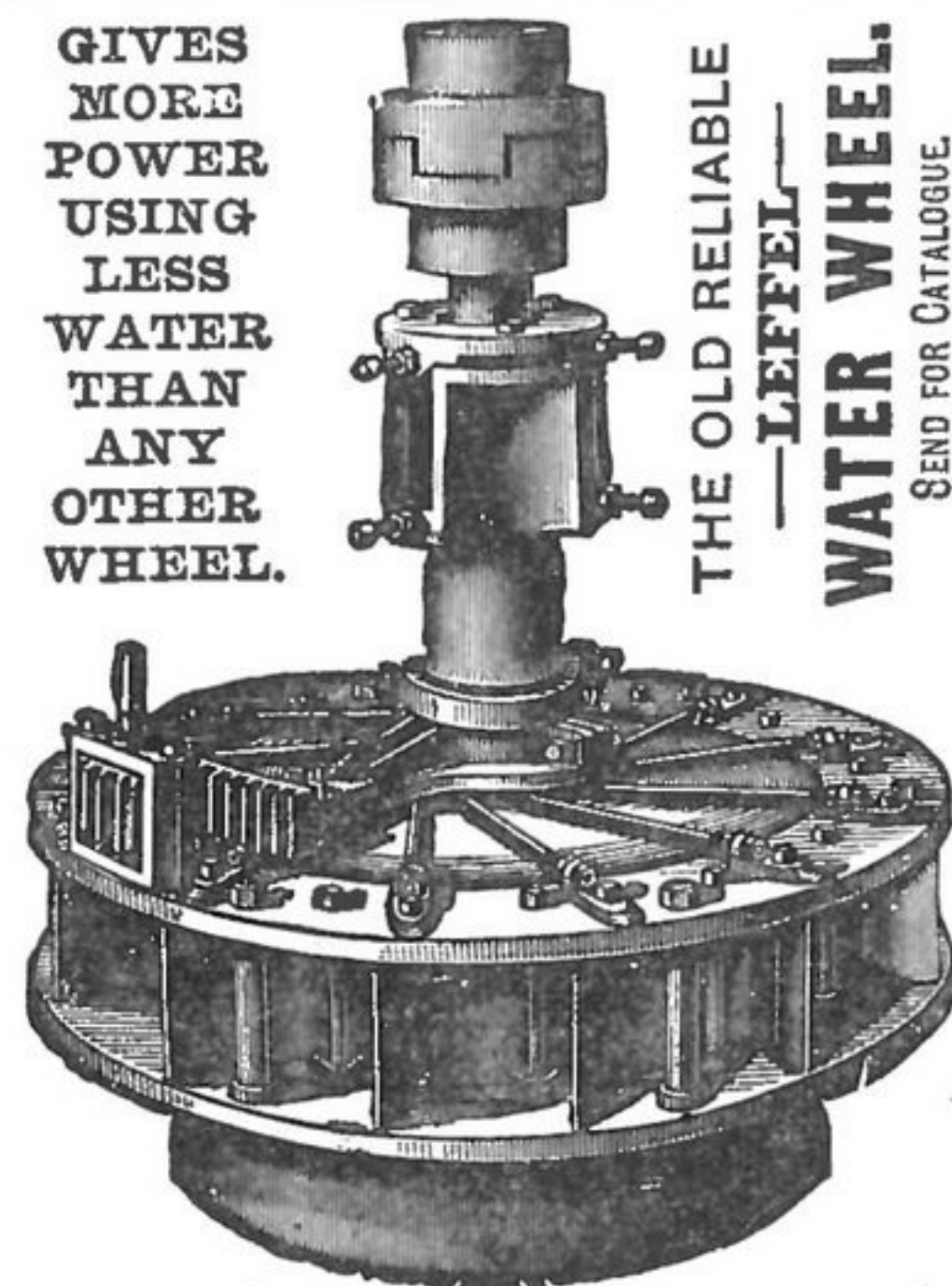
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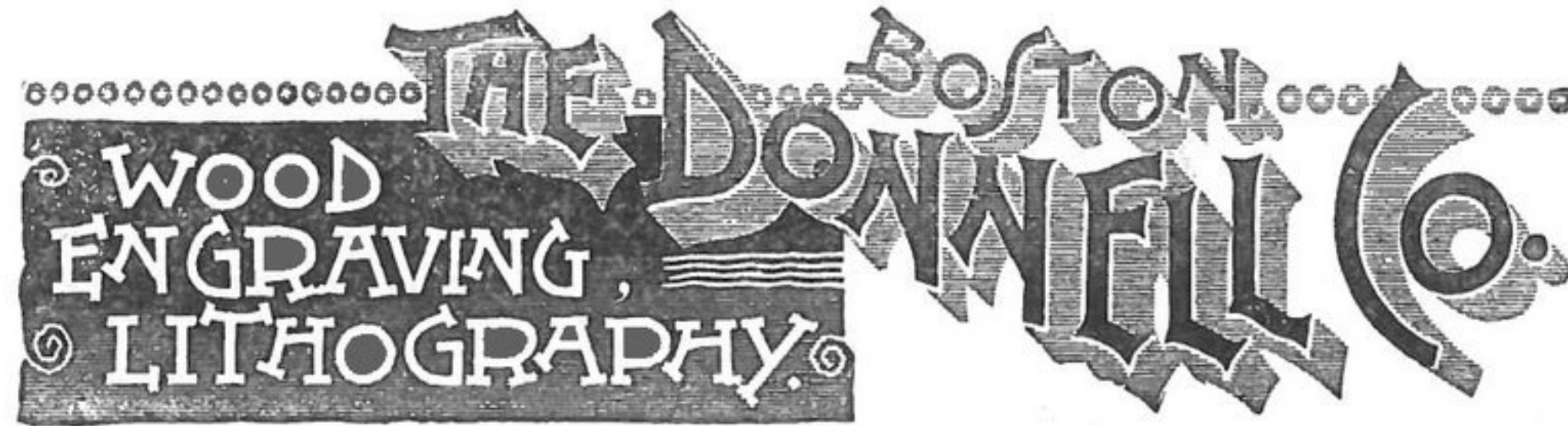
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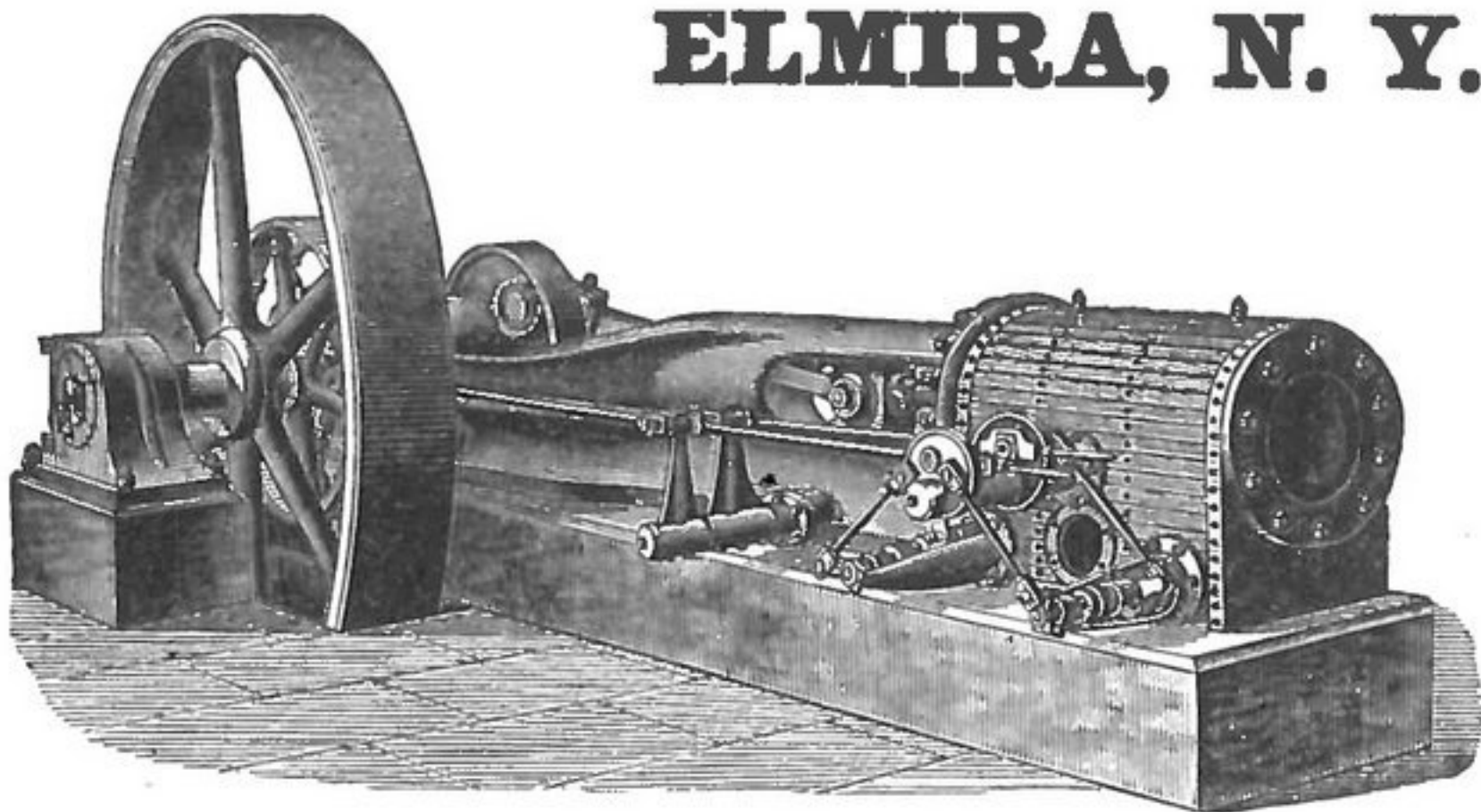


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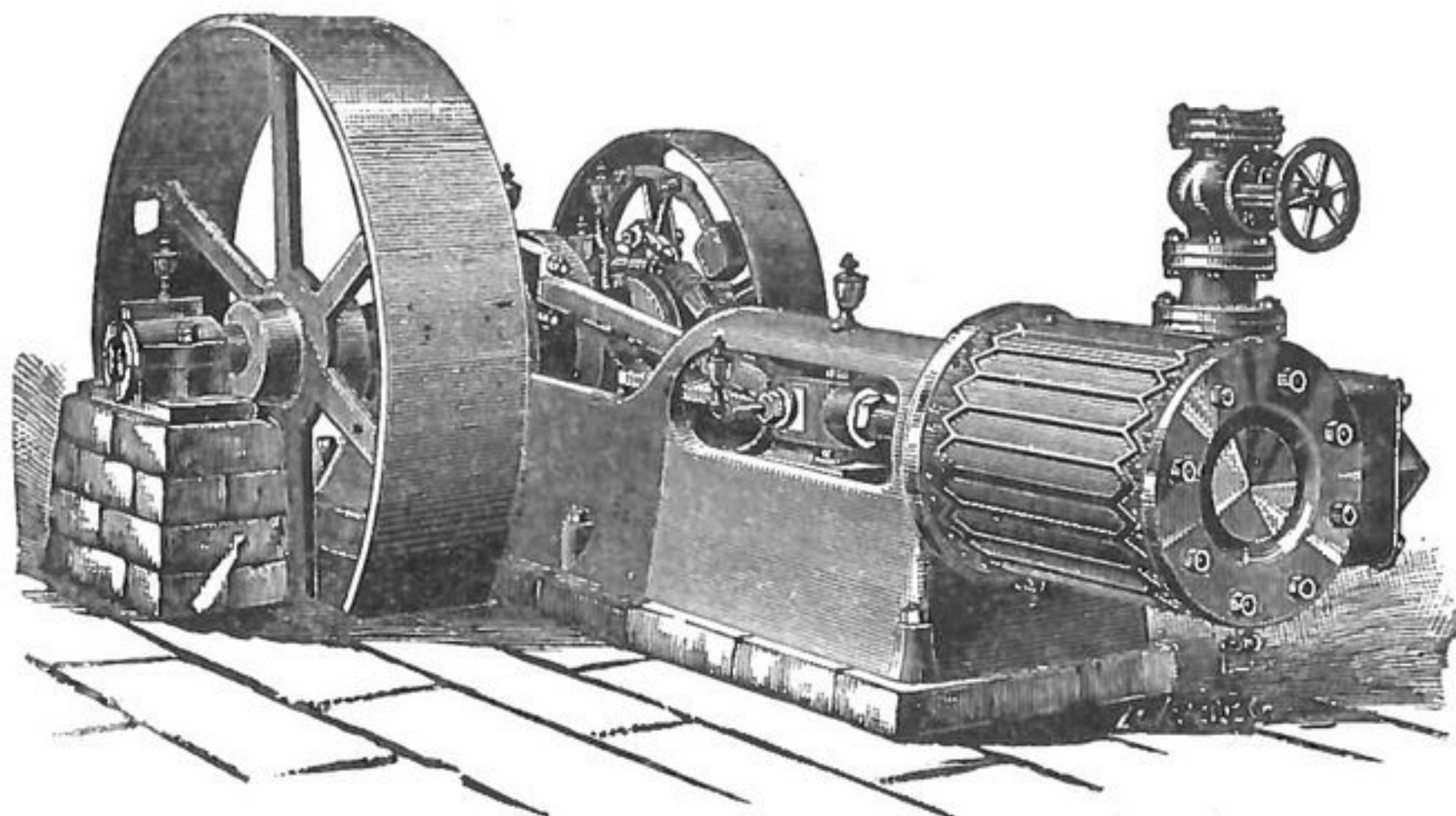
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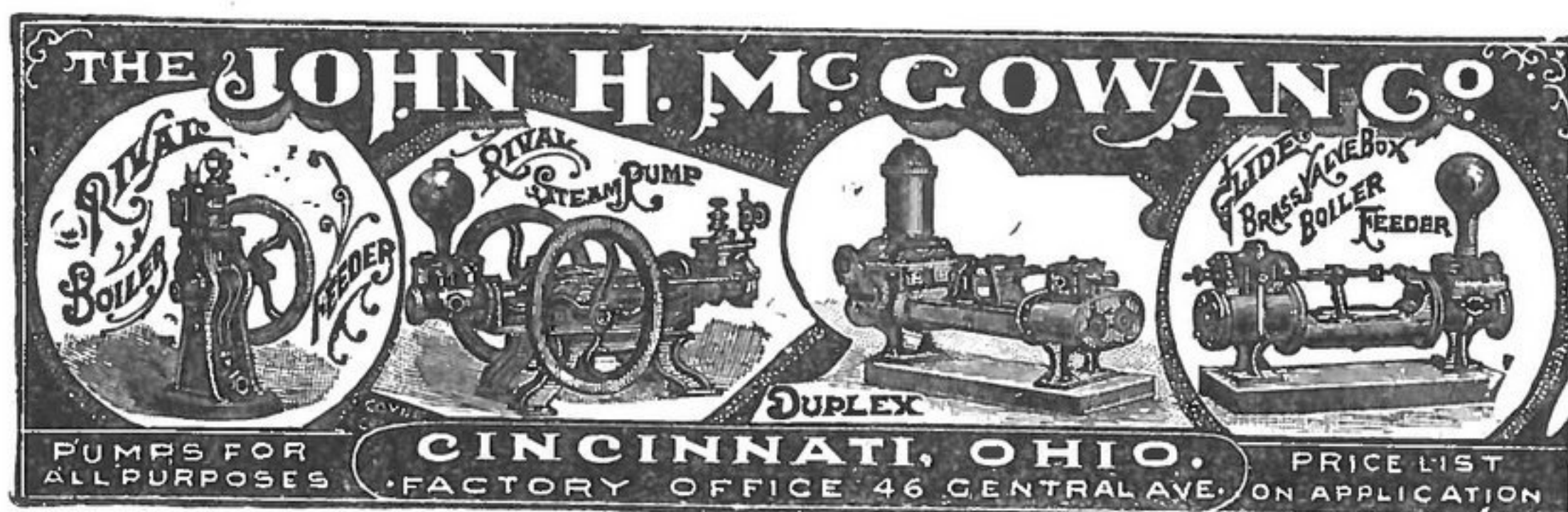
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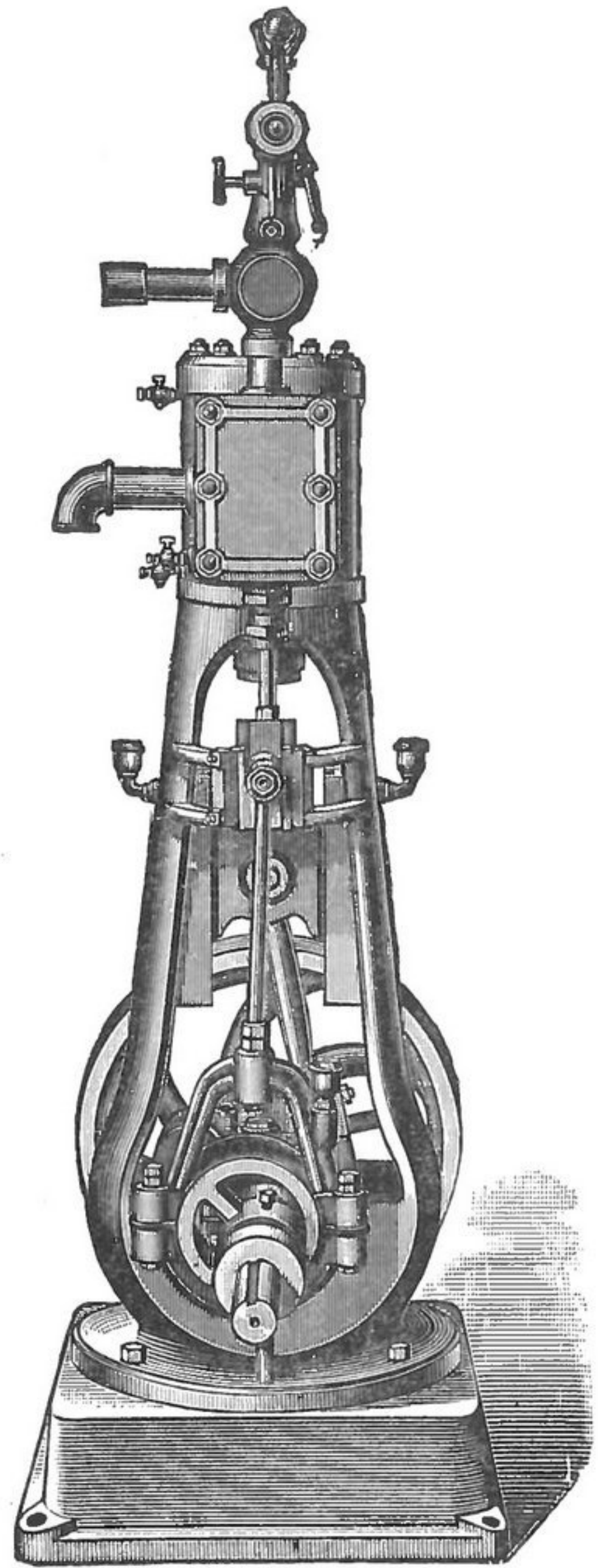
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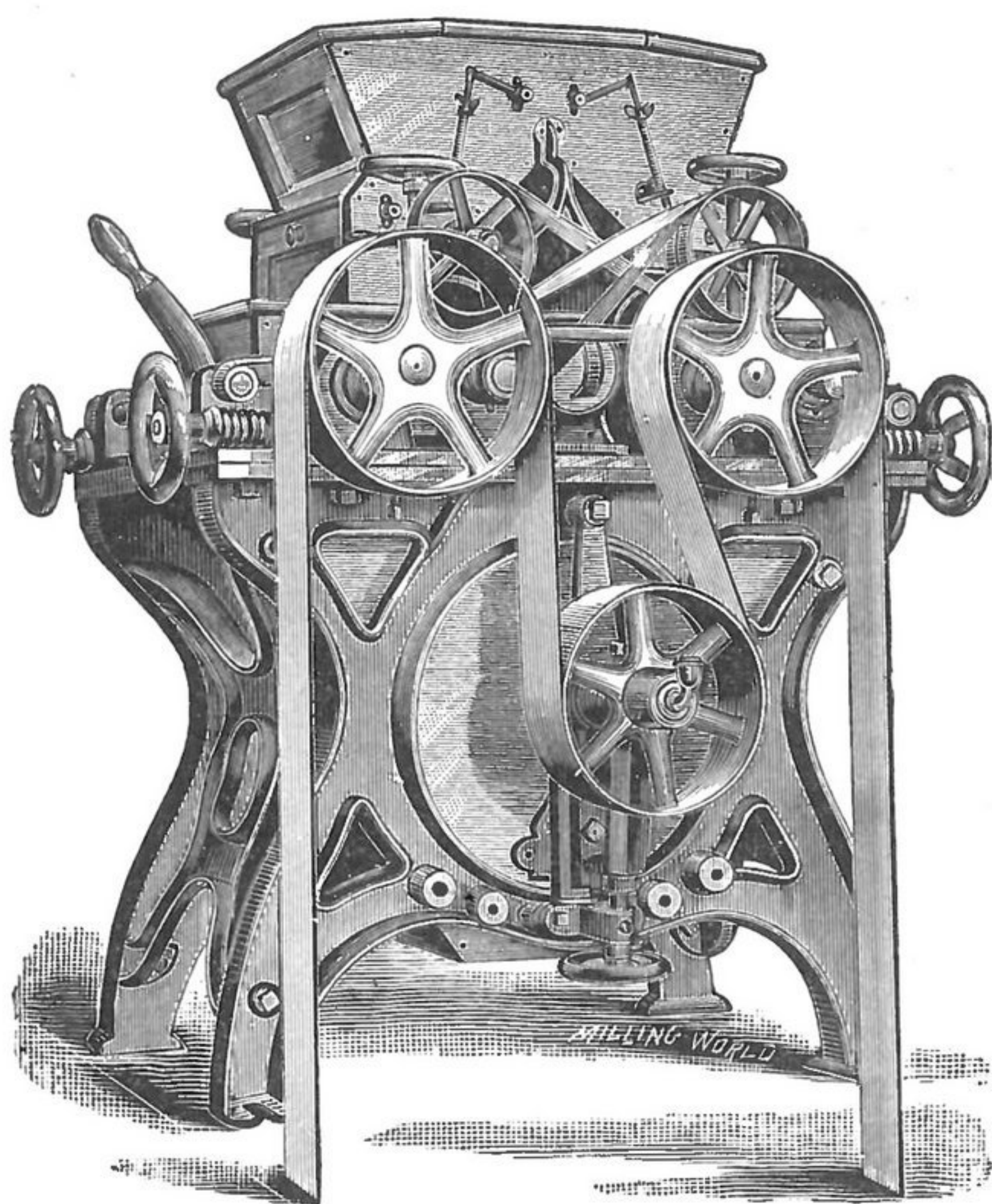


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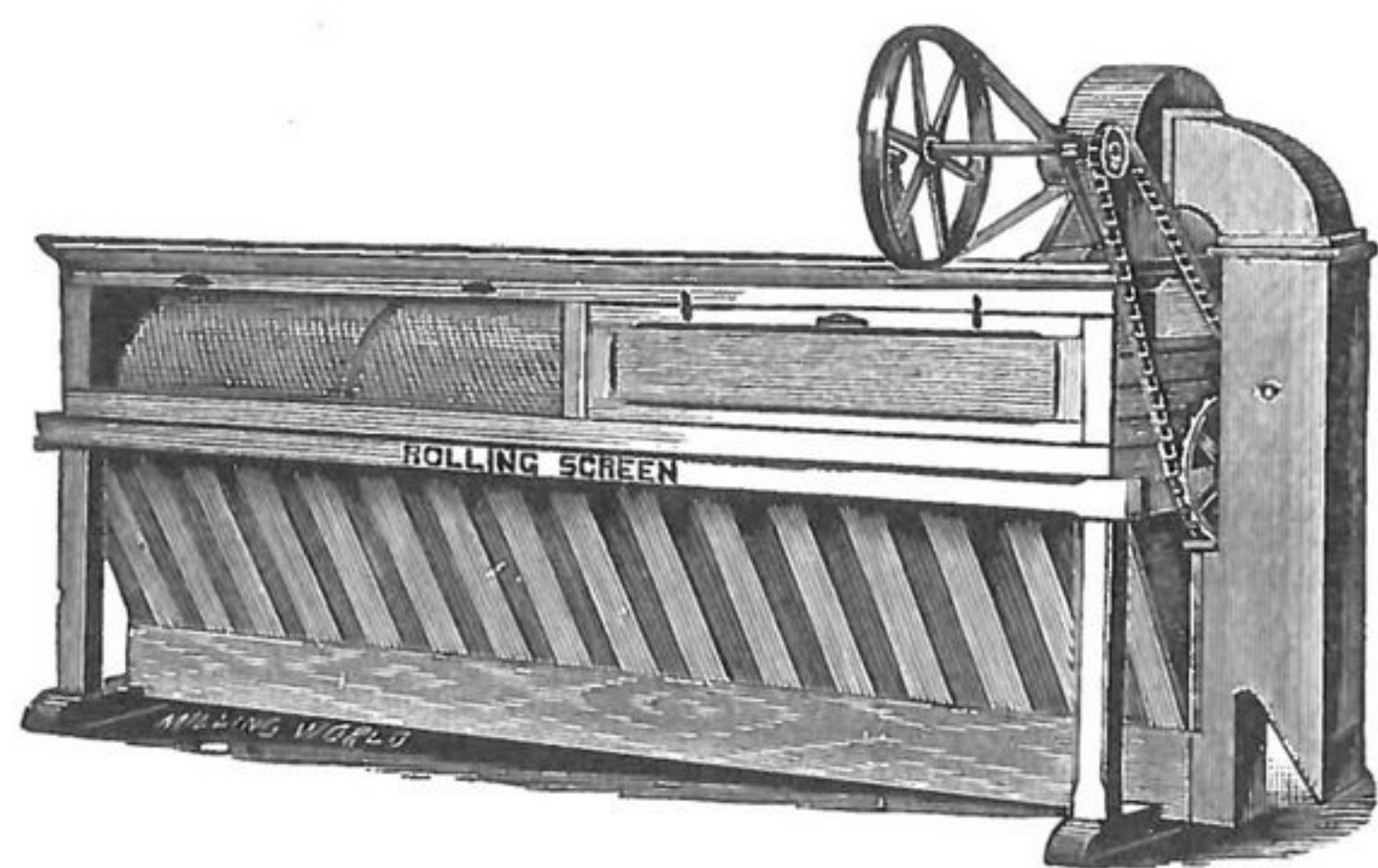
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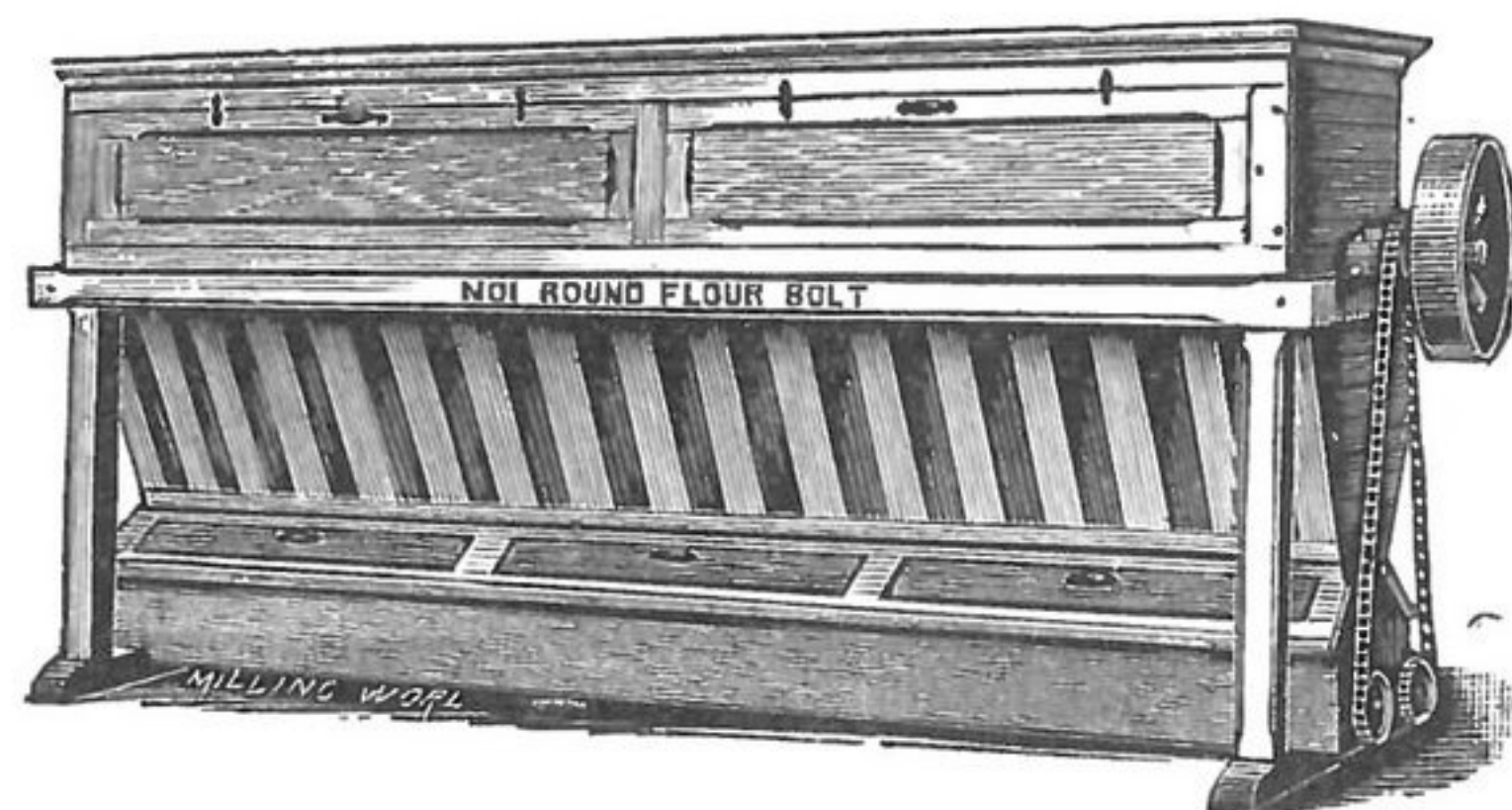
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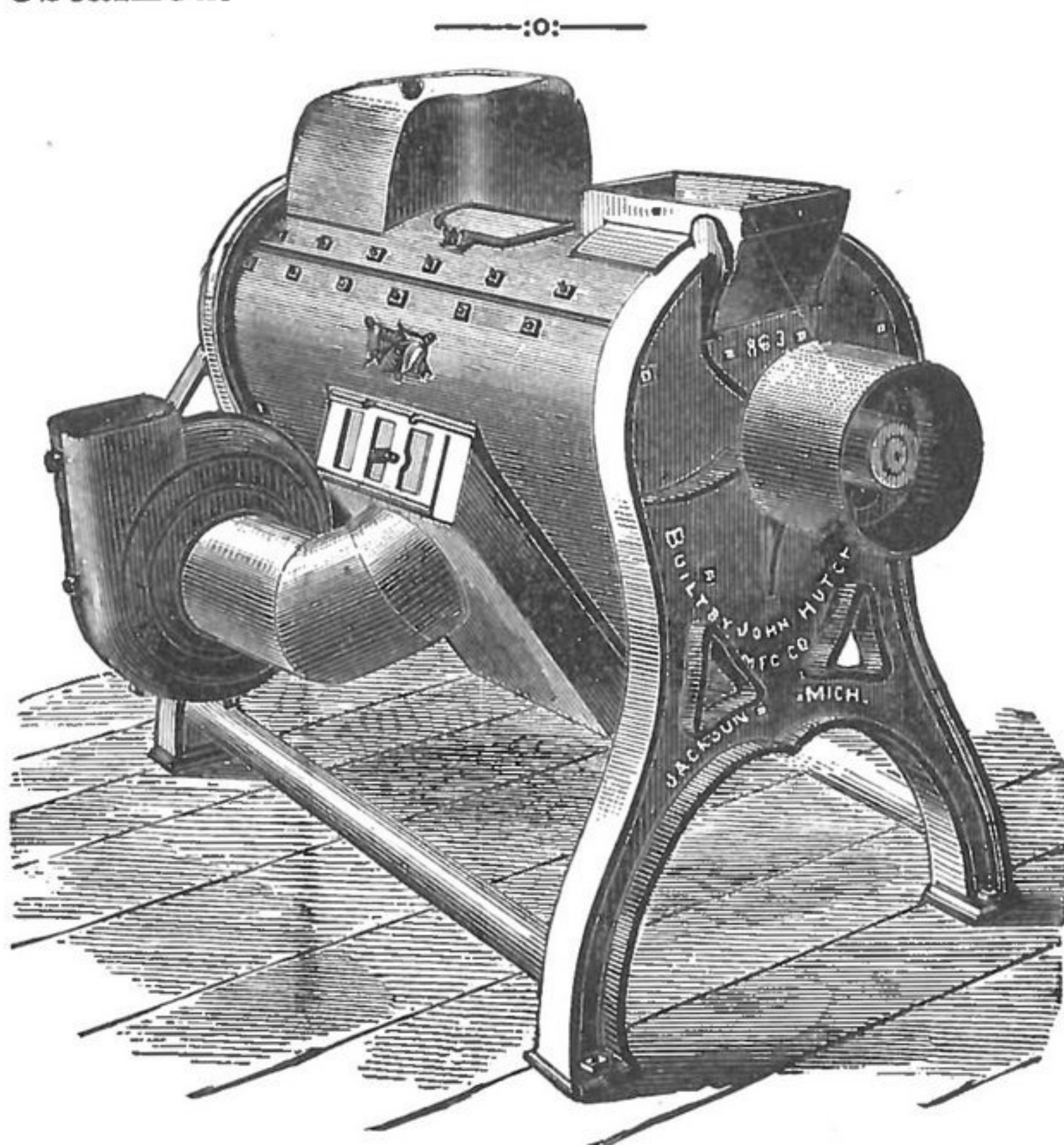


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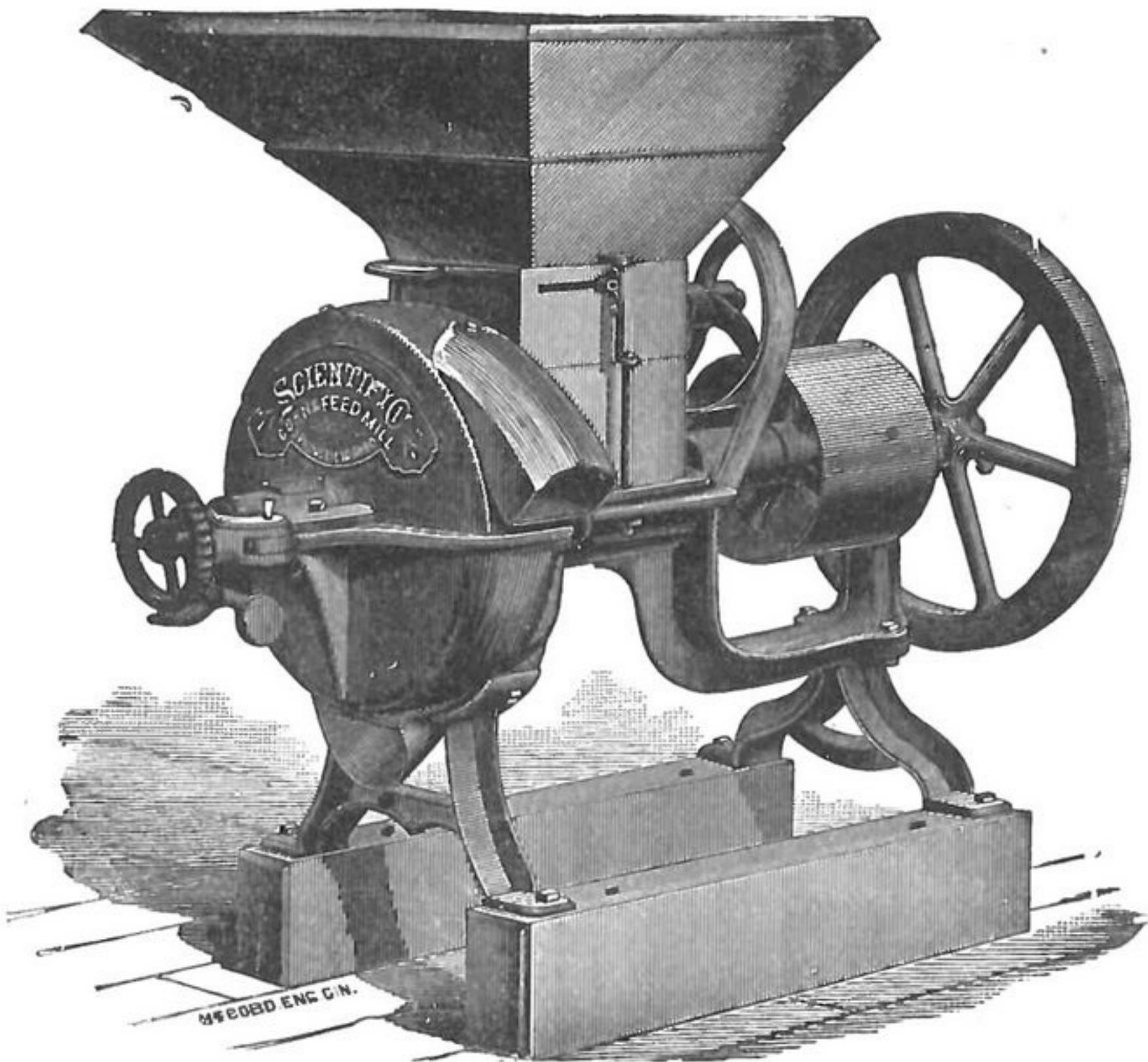
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